

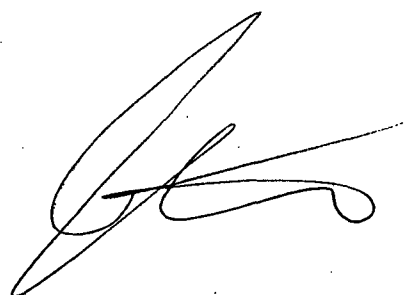
**WORKERS' COMPENSATION FOR
PSYCHOLOGICAL INJURY**

by

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Submitted in partial fulfilment of the requirements for the degree of
Doctor of Philosophy (Clinical Psychology)
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ABSTRACT

Workers' compensation claims for psychological injury represent a significant drain on financial resources. Most commonly, occupational stress research has focused on individuals still at work. As a consequence, pathways from developing work related stress conditions to lodging a workers' compensation claim have received little attention. This investigation was concerned with identifying the factors that may contribute to an individual lodging a workers' compensation claim for psychological injury.

Four groups were involved in this study including individuals who had made a claim for workers' compensation for psychological injury, a group of workers who had sought professional assistance for symptoms relating to work stress but who had not lodged a claim, a group of workers who had experienced stress symptoms at work but who had not sought professional help or lodged a workers' compensation claim, and a group of workers who had experienced stressful events at work but who had not developed psychological symptoms. An intensive design was employed with participants being involved in all studies.

The process of occupational stress is a complicated one. A considerable number of factors related to onset, experience and consequences of occupational stress have been identified. A model developed by Berry (1998) was adopted for the present study to guide the investigation of the factors that influenced the lodging of a workers' compensation claim for psychological injury. Five studies were conducted using this model as a guide.

Initially, details regarding the participants' work history were determined by a verbally administered questionnaire. In relation to Study 1, self-report questionnaires were administered to determine the influence of factors relating to

the individual. No significant group differences were evident on measures of dysfunctional attitudes, irrational beliefs, career beliefs, or coping resources. There was no evidence that these factors contributed to either the development of occupational stress or claiming workers' compensation for psychological injury.

In Study 2, self-report questionnaires were administered to determine the influence of work-related and nonwork environmental factors. There were no group differences in relation to stressful life events outside of work or daily hassles. In contrast, work environment factors did differentiate groups. The compensation group reported poor relationship factors including less involvement and less staff support in combination with more work pressure.

In Study 3, specific work stressors were considered using self-report questionnaires. There were a range of work stressors that distinguished the compensation group from the other groups. For example, stressors that were related to high levels of pressure, little reward, and little support were characteristically reported by the compensation group.

Study 4 examined the psychophysiological and psychological responses to stressful and nonstressful work events as they occurred by using a personalised, staged, guided imagery technique. Although stressful work events elicited greater arousal and more negative psychological responses than did nonstressful work events, the responses of all groups were similar.

In Study 5, self-report questionnaires were administered to determine differences in outcome measures. The compensation and assistance groups were the only groups who experienced clinically significant psychological symptomatology with these two groups demonstrating unique symptom patterns. Differences in the adoption of coping strategies also were noted.

Finally, a series of stepwise regression analyses were performed to determine the factors that significantly contributed to selected outcome variables. It was interesting to note that factors that did not distinguish the groups still predicted the development of negative consequences of occupational stress.

The results were discussed in relation to the factors that could be used to predict a claim for workers' compensation for psychological injury with the aim of developing appropriate intervention and management strategies. Directions for future research were considered with particular focus on a suggested examination of the decision pathways that lead to a workers' compensation claim for psychological injury.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 Introduction to the investigation

The incidence of occupational stress has been reported to be reaching significant levels (Brogmus, 1996) and represents a substantial problem (Dollard & Metzger, 1999). The Australian Council of Trade Unions' (1997) national survey on stress at work highlighted the fact that one quarter of all employees took time away from work because of stress (<http://www.cpsu.org/stress.survey.htm>). Indeed, stress is the most commonly reported work-related injury among employees in the Commonwealth public sector after sprains and strains (Johns, 1995). It is clear that occupational stress is cause for serious concern (Haines, Williams & Woo, 1996). Investigations in this area have developed from early clinical research to the widespread interest it receives today.

There is little doubt that the term 'stress' is commonly used although it has been argued that it has been poorly defined in the literature (e.g., Dobson, 1982). There is a lack of consistency between definitions. For the purposes of this investigation, 'stress' defines the psychological state that is experienced by an individual when faced with demands, constraints, and/or opportunities that have important but uncertain outcomes. 'Stressors' will be considered to be the environmental situations or events that have the potential of producing a state of stress (Greenhaus & Parasuraman, 1987). The term 'strain' has been used to denote the symptoms and indices of stress (Greenhaus & Parasuraman, 1987).

Occupational stress is a problem for individuals, organisations and society as a whole due to its wide ranging effects on productivity, health and quality of life (Spielberger & Reheiser, 1994). The costs of occupational stress are both direct and

indirect (Cooper & Cartwright, 1994). Direct costs can be measured in financial terms but indirect costs in terms of individual wellbeing would be difficult to quantify (Haines, et al., 1996) as would be the damage to relationships between employers and employees (Barth, 1990).

In the UK, 60% of absences from work were reported to be attributed to the experience of stress at work translating into 100 million lost working days per annum (Kearns, 1986). Since this report, there seems to have been little reduction in lost working time because of occupational stress (e.g., Cartwright & Cooper, 1996). Given the economic and personal ramifications of occupational stress, it becomes imperative that all efforts are made to ameliorate stress responses or prevent them from occurring (Loo, 1996).

1.2 Definition of the problem

It has been reported that health care costs are positively related to the experience of stressful events at work (Manning, Jackson & Fusilier, 1996). In the United States, there were over 7 million claims for workers' compensation in the period 1984 to 1993, with over 17,000 being identified as related to psychological injury (Brogmus, 1996). This meant that only 0.48% of all claims were for psychological injury. However, they were disproportionately costly, being associated with 1.69% of the total costs for claims. In 1993, the average cost for a stress-related claim was \$US13,000. In South Australia, 219 workers' compensation stress claims from one government agency cost that agency almost \$AUS5 million (Dollard, Winefield & Winefield, 1999).

The extent of the financial burden occupational stress places on the Tasmanian public service alone is evident when consideration is given to the primary financial expenditure on occupational stress between 1992 and 1995 of \$AUS31,000,000 (Haines et al., 1996). By the end of 1996, this figure had risen to \$34,000,000. Indeed, 10% of all workers' compensation claims were reported to be draining 50% of workers' compensation funds. The majority of these claims were stress-related (Mussared, 1997). Workers' compensation figures underestimate the total costs of occupational stress, but one estimate in Australia puts the cost to industry at \$1.4 billion per year for stress-related illness (<http://www.worksite.actu.asn.au>).

Although variations in the numbers of stress-related workers' compensation claims per annum has been suggested to be influenced by factors such as current unemployment, litigation rates, and legislation changes (Brogmus, 1996), it is apparent that the number of workers seeking compensation because of psychological injury as a result of exposure to work-related stress has increased over time in Australia (<http://www.cpsu.org/stress.survey.htm>).

Given the financial and personal burden associated with both the experience of occupational stress and the provision of workers' compensation for work-related stress conditions, it is surprising that relatively little attention has been directed towards understanding the factors that are associated with a claim for stress-related workers' compensation (Kenny, 1995a). Most research has examined employees who remained in the organisation.

Available research indicates that employees who have claimed workers' compensation for a stress related condition have experienced significant

psychological symptomatology and physical manifestations of stress (e.g., Dollard et al., 1999; Haines et al., 1996). The breadth and seriousness of the symptomatology and the potential for reduced quality of life of those experiencing these symptoms makes it important to address the occupational stress problem and to determine the factors that impact on the decision to lodge a workers' compensation claim.

Both men and women are vulnerable to the effects of stress at work (Spielberger & Reheiser, 1994) although it is interesting to note that whereas 51% of claims for psychological injury at work were made by women, they represented only 30% of the total of all workers' compensation claims (Brogmus, 1996). This, clearly, is a reflection of the decreased likelihood of a women being physically injured at work. The important point is that the sex distribution among people who lodge workers' compensation claims for psychological injury has been reported to be relatively equal (Haines et al., 1996), or representative of the sex distribution in the organisation (Dollard et al., 1999).

Attempts have been made to address the occupational stress problems with the application of a range of interventions and management techniques (e.g., Aust, Peter Siegrist, 1997; Briner, 1997; Kinzel & Nanson, 2000; Mays, 1995; Pelletier & Lutz, 1989; Smoot & Gonzales, 1995). However, these interventions have met with variable success rates (Briner & Reynolds, 1999) and often are applied to groups still functioning within the organisation. It is unknown to what extent these types of programs could circumvent a claim for workers' compensation or, indeed, to what extent these types of programs could be used to address the symptoms experienced by people who have lodged a workers' compensation claim for psychological injury.

1.3 Overview of study

Given the economic and individual impact of psychological injury in the workplace, and given the need to reduce the number of workers' compensation claims for psychological injury, it is necessary that the factors that are associated with a workers' compensation claim for psychological injury be identified. Therefore, the aim of this study was to investigate the factors related to occupational stress that were associated with the application for and subsequent acceptance of a workers' compensation claim for psychological injury in the workplace. The investigation used a comprehensive design (see Chassan, 1979; Kratochwill & Mace, 1984; Maher, 1970). The multifaceted nature of occupational stress demanded that a variety of information be elicited from participants, not only specific to a stressful work situation, but related to personal beliefs and experiences outside of work. These influences have been determined to be important variables to consider when examining the nature and extent of occupational stress (e.g., Beehr & Newman, 1978; Cooper & Marshall, 1976; Schuler, 1982).

The study employed 74 participants who had experienced one of four responses to the experience of workplace stressors: the development of work-related stress symptoms with a claim for workers' compensation; the development of work-related stress symptoms with treatment-seeking but without a claim for workers' compensation; the development of work-related stress symptoms without treatment-seeking or a claim for workers' compensation; and no development of work-related stress symptoms. The following overview provides a description of the investigation.

The investigation began with an examination of the concept of psychological injury and how it fits with a workers' compensation system designed to accommodate physical injury at work. The legislation in Tasmania covering issues related to workers' compensation was considered with comparisons being made with other jurisdictions. Further, the literature relating to the precipitants of workers' compensation claims was addressed highlighting the paucity of information relative to the wealth of information about the triggers for the development of occupational stress. Consideration then was given to the effects of involvement in the workers' compensation system including its seemingly intrinsically stressful nature and the problems associated with the identification of spurious claims. Finally, the small amount of literature available relating to the outcomes associated with lodging a workers' compensation claim for psychological injury was covered and critically reviewed.

In Chapter three, examination was made of the theories of occupational stress with particular consideration being given to a model that would allow for the investigation of the influences on both the development of occupational stress and the subsequent claim for workers' compensation. Historical significance was given to the work of Selye and his General Adaptation Syndrome. This was followed by consideration of a stressful life events approach to the understanding of the development of stress responses in general. Theories specifically developed to account for the development of occupational stress were considered including the job demand-control model and the effort-reward imbalance model. In each of the these cases, the criticisms that have been directed at these models were considered.

Investigation then was made of the models that provided global explanatory power to the experience of occupational stress such as the person-environment fit approach (French, Caplan & Harrison, 1982; French & Kahn, 1962; French, Rogers & Cobb, 1974) and the Beehr and Newman's (1978) facet model.

Finally, it was decided to apply a integrated model (Berry, 1998) to the current investigation that provided both explanatory power and combined the elements of a range of other models to account for the development of occupational stress. This model was deemed to provide structure to the investigation of the factors that impacted on the decision to lodge a workers' compensation claim. Each aspect of the model was considered and translated into separate studies of the various potentially influential elements. Each study chapter considered these aspects separately with an integration of the results of each study provided in Chapter 10. In an effort to avoid repetition of information, a decision was made to cover the relevant literature pertaining to each aspect of the model in an extended introduction to each study.

In relation to each of the studies and without a substantial body of literature to guide the decision, it was decided that the lodging of a workers' compensation claim for psychological injury would denote an extreme work-related stress reaction. In terms of severity, this group would be followed by those who did not lodge a workers' compensation claim but did seek psychological assistance to manage symptomatology, followed by the group who experienced stress symptoms but did not seek professional help or workers' compensation. It was considered that when rank ordered in terms of severity, the group who did not experience ongoing stress

symptoms, did not seek professional help and did not lodge a workers' compensation would fall at the mildest end of the continuum. Hypotheses for each of the studies were based on this conceptualisation.

Although there is little direct evidence to support this conceptualisation of impact and severity, there is indirect evidence to support the ranking of the groups in this manner. Firstly, although not compared with relevant control groups, it is clear that people who lodge a workers' compensation claim for psychological injury do experience substantial symptomatology and psychological distress (Dollard et al., 1999; Haines et al., 1996). Secondly, it has been suggested that the lodging of a stress-related workers' compensation claim is often a last resort after other means of dealing with the problem have failed (e.g., no further sick leave available) and reflects an inability on the part of the worker to either manage symptoms or remain in the workplace (Dollard et al., 1999). Although the Assistance group would also have experienced marked levels of symptomatology that resulted in professional help being sought, the need to remove themselves from the workplace had not occurred. This suggests that the problem situation had not escalated to the same extent as it had for the Compensation group.

Chapter four covered the literature pertaining to the personal influences on the development of occupational stress. It was evident that there was a variety of ways in which personal factors could be understood. A selection of these influences was considered. The aim of the study was a consideration of the influence of these types of variables on the development of occupational stress and the decision to lodge a

workers' compensation claim. The variables addressed were coping resources, irrational beliefs, dysfunctional thinking and career beliefs.

Chapter five examined the literature relating to the influence of environmental factors on the development of occupational stress. Consideration was given both to the nature of the work environment and the experience of other stressful events, both major and minor, outside of the workplace. The aim of the second study was to apply these variables to the examination of the development of occupational stress in the current sample and investigate their impact on the decision to lodge a workers' compensation claim.

Chapter six investigated the literature relating to the experience of stressful events at work that would trigger the development of a stress-related condition. The literature relating to organisational stressors, job-related stressors and interpersonal stressors was considered. The aim of the third study was to determine which of these workplace stressors contributed to the development of occupational stress and the decision to lodge a workers' compensation claim. This was approached in two ways. Firstly, examination was made of the influence of more global stressors such as role ambiguity and role conflict. There is a substantial body of literature identifying these types of variables as having significant impact on the development of occupational stress. Secondly, consideration was given to the nature and severity of specific workplace stressors on the process of the development of occupational stress and the workers' compensation claims made. These specific stressors had been identified as being relevant to other individuals who had lodged a workers' compensation claim for psychological injury (Haines et al., 1996).

Chapter seven considered the literature relating to the reactions of individuals to work-related stressors at the time of the experience of the stressors. In particular, the body of literature relating to psychophysiological reaction to workplace events was reviewed. The aim of the fourth study was to consider both the psychophysiological and psychological responses of individuals to stressful events at work to determine if the reactions at the time of the event contributed to the development of occupational stress and influenced the decision to lodge a workers' compensation claim. Comparisons were made of the reactions to stressful work events with those in relation to nonstressful work events and neutral events not associated with work. A personalised, staged, guided imagery methodology (Haines, Williams, Brain & Wilson, 1995) was used to recreate the memories of the events of interest so that responses to these events could be measured.

Chapter eight examined the literature relating to a range of outcome variables that have been identified as resulting from the development of occupational stress. These included psychological symptomatology, behaviour changes, changes in coping efforts, physical health status changes, and job satisfaction changes. Study five considered the differences between groups in relation to these outcome variables to determine to what extent the experience of occupational stress resulted in more negative outcomes and whether the nature of these outcomes was related to the decision to lodge a workers' compensation claim for psychological injury.

Chapter nine examined Berry's model as a whole by examining which of the variables contributed to the prediction of the psychological, coping, and job satisfaction outcomes. The literature relating to the prediction of outcome was

covered. A series of stepwise regression analyses were conducted to examine the prediction of specific outcome variables. The analyses initially considered the experience of workplace stressors as the trigger for the development of occupational stress and determined which other variables contributed to the outcome.

Chapter ten provided a summary of the results along with interpretation of these results in terms of their clarification of the factors relating to the development of occupational stress and the decision to lodge a workers' compensation claim. Limitations of the study were discussed and directions for future research were highlighted.

CHAPTER 2

COMPENSATION FOR PSYCHOLOGICAL INJURY

2.1 The nature of psychological injury

An examination of the representation of work stress in the Australian newsprint media indicated that the public view of psychological injury at work is that it is occurring in epidemic proportions, that it is an economically costly phenomenon, that it is a direct result of unsuitable work conditions, that there is no universal means of fixing the problem, and that it primarily occurs within the public sector (Lewig & Dollard, 2001). As a resource, the public's perception fails to provide an adequate definition or understanding of the nature of psychological injury.

Workers' compensation legislation requires that employees demonstrate that they have developed a clinical condition as a result of exposure to work stressors (Eisner, 1984) and employment must be the most substantial contributor to the condition (Lasky, 1991). This clinical condition is deemed to be a psychological injury. Psychological injury does not represent the majority of workers' compensation claims (Barth, 1990; Brogmus, 1996), although they are difficult to administer (Barth, 1990) and disproportionately costly (Brogmus, 1996).

There are fundamental problems with a workers' compensation definition of a psychological injury within a system that was designed to accommodate physical injury. Nevertheless, three types of psychological injury have been identified: physical-mental, mental-physical, and mental-mental (Barth, 1990; Earnshaw & Cooper, 1991; Larsen, 1995). Physical-mental cases involve the development of a negative psychological response following physical injury. For example, elevated anxiety scores were evident in people who had sustained a physical injury at work as well as those who had sustained a psychological injury

(Gottschalk & Rey, 1990). In addition, the development of posttraumatic stress symptoms following occupational injury has been reported (Lawson, 1987). Given these types of findings, there has been an increasing demand for psychological evaluation of people who have been physically injured at work (Tsushima, Foote, Merrill & Lehrke, 1996) because of the stress caused by the injury on both the individual and the organisation (Kenny, 1995b).

Mental-physical cases include those where the development of stress symptoms precedes the development of physical symptoms or injury (Earnshaw & Cooper, 1991). For example, it has been reported that chronic pain patients who were unable to work were more likely to have experienced higher job stress (Feuerstein & Theborge, 1991). There was a significant contribution of stress-related factors to the development of upper extremity work-related musculoskeletal pain (Randall, Griffiths, Cox & Welsh, 2002) and the onset of repetitive strain injury has been reported to be associated with stressful environmental work factors (Hopkins, 1990). Further, individuals who made workers' compensation claims for carpal tunnel syndrome were more likely to have experienced a previous work stress, such as having received a disciplinary notice (Butler & Liao, 2002). Of course, there is a body of research linking stressful work experiences and increased risk of the development of coronary heart disease (e.g., Bosma, Peter, Siegrist & Marmot, 1998; Peter, 1995; Peter, Alfredsson, et al., 1998) although some would suggest that the evidence of this link is not as strong as previously thought (e.g., Heslop, Smith, Metcalfe, Macleod & Hart, 2002; Weidner, Boughal, Connor, Pieper, & Mendell, 1997).

Mental-mental cases are characterised by the development of psychological symptoms following exposure to recognised stressful conditions at work

(Earnshaw & Cooper, 1991). Mental-mental cases have been further classified on the basis of the relationship between the stressor and the onset of symptoms. In particular, two patterns have been identified (Larsen, 1995). One is characterised by an acute onset of symptoms following exposure to a known psychologically traumatic event. The second is characterised by the insidious onset of symptoms arising from the cumulative effect of exposure to lower grade work stressors.

It is the case that the physical-mental and mental-physical cases are associated with some form of physical disablement and this factor may make these types of claims easier to accept and allow for a more objective measurement of injury. However, mental-mental claims are associated with no such objective means of assessing their validity despite the presence of a cogent explanation for the development of the injury (Adler & Schochet, 1999; Lippel, 1989).

Most jurisdictions in the US allow for compensation following psychological injury (Eisner, 1984). This is also the case in Australia (<http://www.workcover.vic.gov.au>). Despite the attractiveness of uniformity in workers' compensation legislation (Spaulding, 1990), regional differences create difficulties for directly comparing research results investigating the precipitants of workers' compensation stress claims, and the effects and consequences of involvement in the workers' compensation system. Nevertheless, it would appear that case outcomes between jurisdictions of workers' compensation claims are similar (Maffeo, 1990).

Although it has been argued that the means of determining the presence of a psychological injury and the link between the injury and the employment-

related precipitant are well developed (Adler & Schochet, 1999), it has been questioned whether there is any reliable way that psychological injury can be determined given the lack of clear relationship between cause and effect (Eisner, 1984), particularly in the cases of insidious onset, cumulative stress. The problem is compounded by discrepancies in the diagnostic practises of psychiatrists such as using outdated diagnostic criteria (Horgan, 1996).

2.2 Workers' compensation legislation

Workers' compensation legislation relating to psychological injury places psychiatry within an adversarial medicolegal system (Whyman & Underwood, 1991), with a need to combine two seemingly disparate area and allowing for an interchange of conceptual tools within these areas (Lasky, 1991). The workers' compensation system was devised as an alternative to a tort system (Lippel, 1999a) although common law or civil action should not, in principle, be prohibited by workers' compensation laws (Bernat, 1994). The workers' compensation system can be confusing for claimants who, generally, have insufficient knowledge about the appropriate legislation (Kenny, 1995c). This, coupled with legislative restrictions on claims for work stress (e.g., U'Ren & U'Ren, 1999), makes entering the workers' compensation system fraught with difficulty for claimants.

In Tasmania, Workcover Tasmania is the scheme that deals with workers' compensation claims. The legislation pertaining to workers' compensation is the Workers' Rehabilitation and Compensation Act, 1988. The Act states that:

“If in any employment (a) a worker suffers an injury, not being a disease, arising out of and in the course of his employment; or (b) a worker suffers an injury, which is a disease, arising out of and in the course of his employment and to which his employment contributed to a substantial degree, within the meaning of section 3(2A), his employer is, except as is otherwise provided by this Act, liable to pay compensation in accordance with this Act to the worker, or if the injury results in the death of the worker, to the persons who are the workers’ dependents at the date of his death or who would, but for any incapacity due to the injury, have been his dependents.” (<http://www.thelaw.tas.gov.au>).

A worker must demonstrate the injury was caused at work, and a claim must be made within 6 months of an event (<http://www.thelaw.tas.gov.au>). The current investigation involves a sample of Tasmanian workers who were covered by this legislation. However, it should be noted that Commonwealth employees are covered by a separate scheme (Comcare) and separate legislation (Safety, Rehabilitation and Compensation Act, 1988; <http://scaleplus.law.gov.au>).

Each state and territory in Australia has its own legislation regarding compensation for work-related injuries experienced by non-Commonwealth employees. Table 1 contains a summary of the comparisons between the Tasmanian legislation and benefits and that of other states and territories. A complete comparison between all Australian states and territories and Commonwealth schemes including a comparison with New Zealand legislation can be viewed at <http://www.workcover.vic.gov.au>.

Table 1.

A summary of the comparisons between Tasmanian workers' compensation legislation and benefits and those of other states and territories.

Variable	Tasmania	Comparison states
Coverage of Act	Injury or disease arising out of or in the course of employment; employment must contribute to a substantial degree; no explicit reference to psychological injury.	Some other states more explicit; South Australia makes reference to physical or mental injury; most states say employment must be significant contributing factor except South Australia (substantial cause) and Northern Territory (no reference).
Duration of benefit	First 13 weeks 100%; after 13 weeks 85%; after 52 weeks 70% with expiration after 10 years.	Other states and territories may have more specific information about duration and amount.
Medical benefits	No limit for 10 years.	Most other states do not limit benefits; Western Australia limits costs; Victoria limits time to 52 weeks following cessation of weekly payments.
Maximum lump sum payment	\$162,795 for permanent impairment.	Commonwealth \$123,243 + additional benefits; other states range from \$103,514 to \$327,370 with provision for payment for pain and suffering.
Common law rights	Available.	Commonwealth abolished; Victoria limited rights.
Return-to-work	Employee's position kept open for 12 months; alternative duties must be available.	Northern Territory no requirement to keep job open but must demonstrate reasonable effort to provide suitable employment or assistance to find alternative employment.
Requirements of worker	Must participate in rehabilitation program; must engage in reasonable medical examination or treatment.	Similar in other states; Queensland no requirement to participate in medical examination or treatment.
Dispute resolution	Three stages: conciliation, arbitration, appeal to Supreme Court on points of law.	Similar in other states and territories; more comprehensive in Victoria.

In summary, the Tasmanian legislation does not specifically address psychological injury although a claim for workers' compensation arising from

psychological disturbance is allowed. The legislation covers the process of rehabilitation and the availability of return-to-work alternatives.

2.3 Stress related claims

2.3.1 Precipitants

It is more straightforward to identify predictors of physical injury at work than psychological injury. For example, both job hazards and locus of control were determined to predict with 89% accuracy involvement in an accident at work that resulted in a workers' compensation claim for physical injury (Janicak, 1996). Much less is known about the prediction and, indeed, management of stress-related workers' compensation claims although identification was made of the nature of the circumstances that precipitated a workers' compensation claim for psychological injury: an isolated critical incident, a critical incident that occurred in conjunction with ongoing stress at work, and chronic work stress in the absence of a critical incident (Dollard et al., 1999).

There is a small body of literature examining specific stressors that lead to workers' compensation claims. Surprisingly, relative to other aspects of the discussion of workers' compensation for work-related stress, less information is available about the circumstances under which a workers' compensation claim is made. In a study of Canadian workers, violence at work was identified as a factor that lead to workers' compensation claims being made at work in health care workers (Boyd, 1995). Indeed, these results have been supported elsewhere with health care workers being identified as being at risk of assault and that the resulting emotional distress leads to the lodging of workers' compensation claims (Sullivan & Yuan, 1995). Further, workplace sexual assault of women in general

leads to workers' compensation claims being lodged (Alexander, Franklin & Wolf, 1994).

Some information is available about the circumstances under which an employer will be held liable for the psychological injury of the employee. For example, one study found that liability is apparent if no action was taken to stop the sexual harassment of the employee or there was too long a delay in taking action (Goodson, Lewis & Culverhouse, 1994).

Alternatively, information is available about the particular psychological conditions that give rise to a workers' compensation claim. For example, the presence of posttraumatic stress disorder arising from a workplace incident has been identified as a circumstance that would lead to a workers' compensation claim (Levit, 1989; Mendelson, 1995). However, it is interesting to note that in the US, workers' compensation following exposure to a traumatic event and the development of Posttraumatic Stress Disorder (PTSD) is more likely to be awarded if physical injury also is present (see Mann & Neece, 1990). It is evident that legislation in some states disputes that an 'injury' can exist when the triggering event is emotional in nature (Larsen, 1986; Zupanec, 1980/1989).

In some US states, it is a requirement for the stressor leading to mental injury to be 'unusual', and for some this refers to stress that is greater than expected from everyday activities. Other legislation refers to 'unusual' as meaning outside the experiences associated with normal employment (Larsen, 1986; Newlin, 1988; Zupanec, 1980/1989). Although these restrictions still accommodate traumatic experience and the development of PTSD, problems obviously would arise when the stressor triggering a mental-mental

psychological injury was a more common workplace stressor such as poor supervisor support.

2.3.2 Effects

Involvement in the workers' compensation system can be stressful for claimants (Trief & Donelson, 1995). This has been reported to be the case with physical injury (e.g., Kenny, 1995b). It has been suggested that the system encourages exaggeration of symptom reports, poorer overall functioning, the adoption of a negative view about health status, and increased anxiety (Trief & Donelson, 1995).

When considering people with lower back pain, it is evident that not receiving workers' compensation is related to reports of a better physical quality of life (Claiborne, Vandenburg, Krause & Leung, 2002). In relation to people with chronic pain and soft tissue injuries, it has been reported that involvement in the workers' compensation system can be a negative experience that results in feelings of worthlessness and powerlessness (Frankcom, 1992) and well as producing a learned helplessness response in claimants (Walker, 1992) due to the uncontrollable nature of aspects of involvement in the workers' compensation system. Indeed, difficulties with the management of work-related stress responses have been attributed to the negative influences of loss of control experienced by claimants as a consequence of the system itself (Walter, Zinser & Eells, 1999). However, others have suggested that it is the effect of litigation and not the workers' compensation system per se that is stressful (e.g., Tait, Chibnall & Richardson, 1990).

For people with a psychological injury, difficulties have been experienced when attempting to gain workers' compensation, especially for women (Lippel, 1999b). Interestingly, these difficulties were not related to the experience of non-work related stressors, legal representation, resistance on the part of the employer, or the nature of the work stressors that precipitated the claim, factors that normally are identified as presenting obstacles to the acceptance of work-related stress claims (e.g., Haines et al., 1996).

Illness behaviours and an often lengthy recovery have been labelled as signs of personal weakness or an attempt to gain financial reward or an unfair advantage (Niemeyer, 1991). Reports have suggested that receipt of a workers' compensation benefit is positively associated with both the incidence of workers' compensation claims and the duration of these claims (Loeser, Henderlite & Conrad, 1995). Certainly, in orthopaedic patients, longer duration of symptoms was related to the receipt of workers' compensation benefits (Hinkley & Jaremko, 1994) and prognostic judgements of lower back pain patients were poorer when they were in receipt of a workers' compensation benefit (Simmonds & Kumar, 1996). Further, the outcome of spinal surgery has been reported to be negatively affected by involvement in the workers' compensation system and litigation (Epker, 2001). However, it may be the very nature of the complex, adversarial workers' compensation system that tends not to encourage rapid recovery (Brodsky, 1990). In addition, it has been suggested that the implementation of appropriate rehabilitation strategies can overcome the negative influences associated with involvement in the workers' compensation system (Kishino, Polatin, Brewer & Hoffman, 2000), at least in spinal surgery patients.

There is a body of literature examining the reported tendency of individuals in receipt of workers' compensation benefits or who have lodged a workers' compensation claim to exaggerate their symptoms or malingering. For example, a proportion (12%) of individuals who claimed to be psychologically injured (but not neuropsychologically impaired) as a result of exposure to a work related stressor seemingly were faking cognitive impairment as measured by failure on the Memorisation of 15 Items Test and the Dot Counting Test (Boone et al., 1995), and the Hand Movements subtest from the Kaufman Assessment Battery (Bowen & Littell, 1997). These results have been supported by others (e.g., Iverson, King, Scott & Adams, 2001). However, it has been suggested that depression as well as poor motivation may be responsible for the poor scores on tests of cognitive impairment (Fox, 1994), factors that are not related to witting exaggeration of symptoms.

Also, it has been reported that employees who lodge a workers' compensation claim for psychological injury may fear that their claim may not be considered to have basis (Dollard et al., 1999). It may be that the need to prove that distress is present, increases the likelihood of symptoms being exaggerated. This has been postulated in relation to people with posttraumatic stress disorder who have been involved in litigation (Haines, Williams & Holmes, 2001). Therefore, it may be that evidence of exaggeration is more a reflection of a need to indicate distress than it is the case of feigning symptoms altogether.

It has been suggested that it is very difficult to define psychological injury and classify it in the same way as physical injury so as to determine when a claim is genuine (Lasky, 1991; Lees-Haley, 1986a). Although psychometric detection of exaggeration or malingering has been described (e.g., Boone et al., 1995; Fox,

Gerson & Lees-Haley, 1995; Lees-Haley, 1986a), this type of assessment is not necessarily straightforward. It also has been suggested that individuals with a genuine psychiatric impairment do not as actively pursue their claims and tend to grieve more than individuals found to be malingering (Lees-Haley, 1986b).

2.3.3 Outcomes

If successful outcome is considered to be a return to employment, then it has been suggested that involvement in the workers' compensation system hampers positive outcomes. It has been demonstrated that receipt of workers' compensation benefits increases the duration of disability and the report of symptoms (e.g., Epker, 2001; Roidl, 1996). It also has been reported that teachers who experience a work-related stress condition have a better chance of successful return to work if they undertake work related activities within 505 days of injury (Young & Russell, 1995). Therefore, it could be assumed that receipt of workers' compensation benefits would be detrimental to the longer term goal of successful return to work.

2.4 Summary

In summary, it is evident that it is more difficult to define psychological injury than physical injury at work, particularly within a workers' compensation system that was developed for the management of physical injury claims. Although differences exist in workers' compensation legislation, the Tasmanian legislation shares many characteristics of other Australian jurisdictions.

In comparison with the volume of literature available about the development of occupational stress, relatively little is known about why an

employee would lodge of workers' compensation claim for psychological injury. Although it is apparent that certain workplace stressors may lead to a claim for compensation and that involvement in the workers' compensation system is problematic for many, the factors that contribute to the decision to lodge a claim are largely unknown. The current investigation aims to address this deficiency in the literature by examining the influences and the nature of their occupational stress reactions of individuals who have lodged a workers' compensation claim for psychological injury.

CHAPTER 3

THEORIES OF WORK STRESS

3.1 Introduction

To examine the factors that may impact on the development of occupational stress and to determine the variables that influence help-seeking by occupationally stressed individuals, it is necessary to work within the parameters of a comprehensive model of the development of work-related stress conditions. There are a plethora of theories that may be applied to this undertaking. Some consider general stress responses and these may be applied to work-related conditions. Others focus on specific aspects of the development of occupational stress such as the relationship between the work-related stressor and the outcome. Finally, other models try to give a comprehensive account of all of the factors that may impact on the process. Following is a review of some of these theories and models.

3.2 Selye's general adaptation syndrome

Selye (1936) proposed one of the first models describing the process of stress in individuals. Selye recognised that patients suffering from the most diverse diseases exhibited strikingly similar signs and symptoms. Experimentation lead Selye to identify that a diverse range of stressors such as temperature, infection, and anxiety resulted in similar physiological changes. These changes became to be accepted as objective indications that the individual was under stress. This lead to the development of the stress concept that Selye termed the General Adaptation Syndrome (GAS) (Selye, 1936).

Selye (1936) described the process of stress as occurring in three stages. These were postulated to be distinct stages and included the initial alarm reaction,

the resistance stage, and the exhaustion stage. Selye proposed that the alarm stage is characterised by endocrine and nervous system changes that prepare the body for action. This stage was similar in its description to Cannon's (1929) fight or flight reaction. This stage involved stimulation of the sympathetic nervous system with resulting hormonal discharge from the adrenal glands during emergencies. The alarm stage was conceptualised as an adaptive response to external demands. At this point, a normal bodily state would be resumed if the external demands were removed. It was postulated that it was only when stress persisted that negative consequences would be experienced (Selye, 1982).

After continued exposure of the organism to any noxious agent capable of eliciting this reaction, a state of adaptation or resistance has been postulated to ensue (Selye, 1936). During the resistance stage, signs such as decreases in heart rate would indicate a return to normal functioning. However, the presence of other signs, such as elevated hormone levels, would indicate a prolonged state of defence (Selye, 1982).

After still more exposure to the noxious agent, it was speculated that the acquired adaptation was lost and the organism entered a third stage, the stage of exhaustion (Selye, 1936). This stage continued as long as the demand was severe enough and applied for a sufficient amount of time. This indicated that an organism's adaptation energy was finite since under constant stress, exhaustion eventually ensued. Further, individual differences in the way in which stress is experienced were reported to be evident. For example, coronary problems were

likely to develop in individuals whose cardiac systems were vulnerable to the effects of stress (Selye, 1982).

Selye's theory has served as a basis for much research in the area of stress (see Hughes, Pearson & Reinhart, 1984; Lundberg, 1984). During the 1960s, the relationships between physiological arousal and performance, wellbeing and social adjustment were investigated. The 1970s saw further clarification of the relationships between neuroendocrine activity and psychosocial stimulation. The results of these studies lead to formulations of possible mechanisms involved in psychosocial-psychoneuroendocrine-health relationships. Selye's ideas have been applied to the understanding of punitive parents (Justice & Justice, 1982), psychological functioning in older age and in relation to retirement (Selye, 1980), culturally specific manifestations of certain diseases (Klein, 1978), the effects of light on infants and children (Anthony, 1988), the relaxation process (Titlebaum, 1988), preventative health behaviours (Rosenbluh, 1985), cultural differences in the experience of stress and life events (Tan, 1995), and cancer (Rosch, 1999).

Further, as new models of stress are proposed, Selye's model is referred to in comparison, or as having influence on the development of these newer formulations (see Goldstein, 1995; Steinberg & Ritzmann, 1990; Van Staden, 1984). For example, a model of psychopathology that considered the mediating role of neurotransmitters in the relationship between psychological stress and psychological defences was based directly on the work of Selye (Siomopoulos & Crawford, 1983). The model of psychopathology presented the view that psychiatric symptomatology was a function of poor psychological adaptation as a result of distress beyond the

individual's emergency function. Further, Selye's model has been referred to in relation to the direct effect of stress on the disease process, for example, coronary heart disease (Stansfeld, 2002).

Selye's model has been applied to the understanding of occupational stress responses. It has been used to explain the differences in the sources of stress and strain among policemen with high and low workloads (Stotland & Pendleton, 1989). In addition, the understanding of the relationship between occupational stress and social support among flight nurses relied on the application of Selye's model (Singh, 1990).

The influence of Selye's model has been recognised (see Kopp & Skrabski, 1989) and it has historical significance. However, it is debatable whether his views can be sustained given the way in which stress is currently viewed (de Farias, 1985; Ratner, 1992; Rice, 1999; Spector, 1997; Wiedemann, Engel & Zander, 1988). For example, the model fails to consider psychosocial factors that have been demonstrated to be fundamental to the appreciation of human stress responses. Nor does Selye's model consider the cognitive processes that have received considerable attention in more recent accounts of stress. Finally, the model does not guide the choice of strategies for coping with stress or clarify the effectiveness of particular coping strategies in managing stress responses (Rice, 1999).

3.3 Stressful life events model

Like Selye, the focus of the work of Holmes and Rahe (1967) was on the physical effects of stress. They theorised that the experience of stress may increase

an individual's vulnerability to illness. From interviewing thousands of tuberculosis patients for events that preceded the onset of their disease, they identified that the experience of stressful events increased chances of illness, and determined that the intensity of events also needed to be considered.

The model postulates that experiences that challenge an individual with the need to engage in coping behaviours result in a stress response. The nature of the event may be negative or positive because it has been determined that major positive events, nonetheless, can be stressful. The degree of stress experienced in reaction to a life event is determined by the nature of the event. The model proposes that the more stressful life events that are experienced, the greater the stress response, and the greater the need to apply coping strategies.

The model describes a pathway from which the influence of life events can be understood. The model takes into account a range of buffers and filters that can change the nature of the reaction to the stressful event. In particular, past experience is identified as a factor that can influence the stress reaction by acting as a filter that may exacerbate or reduce the stress reaction by setting up an expectation that a specific event may be threatening or non-threatening. Next, the presence of pre-existing defence mechanisms may protect the individual by reducing the impact of the event. Thirdly, the physiological reaction to the event is experienced, with increased arousal marking the presence of a stress response. From here, coping strategies are applied, either adaptive or maladaptive in nature, with the maladaptive or ineffective strategies leading to the development of illness outcomes.

Early research included a number of investigations that examined the frequency of stressful life events experienced by individuals before admission to hospital suffering from a psychiatric illness, with comparisons being made with individuals not suffering from a psychiatric illness (e.g., Paykel, 1979; Paykel, Prusoff & Myers, 1975). The results of these studies allowed for the identification of stressful life events that contributed to the experience of serious psychiatric conditions such as schizophrenia and the experience of other events of clinical interest such as suicide attempts. More recently, the experience of stressful life events in the twelve months prior to involvement in Operation Desert Storm predicted the development of anxiety, depression and PTSD among female health care personnel in the Persian Gulf (Slusarcick, Ursano, Fullerton & Dinneen, 1999).

Following from the interest raised by Holmes and Rahe (1967) on health effects, several studies are available that utilised the assessment of the experience of life events as a measure of stress and investigated its relationship to symptoms of ill health. For example, it was demonstrated that the experience of stressful life events predicted the development and onset of chronic primary headache (De Benedittis, Lorenzetti & Pieri, 1990). It was the frequency and intensity of the stressful life events, linked with the negative way in which the event was interpreted, that lead to the onset of the headaches. There has been a reported link between the experience of stressful life events and coronary heart disease (see Tennant, 1999 for review). In contrast, other studies have failed to find an association between the experience of stressful life events and the development of physical symptoms suggesting either inconsistency in the relationship or that the relationship is not a robust one. For

example, no relationship was demonstrated between the experience of stressful life events and tinnitus (Gerber, Nehemkis, Charter & Jones (1985-1986).

Other research has focused on the increased likelihood of the experience of certain crisis situations if life event stress prior to the onset of the crisis was high. For example, increased life event stress increased the likelihood of marital separation and complicated the process (Counts & Sacks, 1985). Further, the experience of stressful life events has been demonstrated to decrease life satisfaction (Geis & Klein, 1990).

Despite a delay in the recognition of the potential usefulness of a life event stress approach to the examination of occupational stress (Bhagat, 1985), the theory has been applied to work-related stress. For example, job relocation stress was reported to be best understood within a stressful life events framework because of the similarity between the experience of job relocation and other stressful life events in relation to the degree of disruption to daily routines, associated changes in social context, the experience of a range of psychological symptoms as a consequence, and the need to implement a range of coping strategies to deal with the impact of the event (Luo & Cooper, 1990).

A comparison was made between Chinese and Western workers with regard to the impact of stressful work experiences on the development of psychological distress (Lin & Lai, 1995). Not only was it able to be demonstrated that work events could be considered to be stressful life events that significantly contributed to the experience of psychological distress, but that the concept was universally able to be applied to the work setting. Further, it was evident that a variety of life stressors

interacted with work-related stressors to increase the severity of psychological distress and impairment among psychologists in clinical practice (Sherman & Thelen, 1998).

Finally, from a review of the literature (Vachon, 2000), it was evident that an interaction between personal variables including the experience of stressful life events and organisational variables contributed to the experience of stress and burnout among hospice and palliative care workers.

Of course, not all research reports of the relationship between life event stress and negative outcomes within the work setting have produced expected results. For example, based on work by Haynes and Feinleib (1980), it was reported that the robustness of the relationship between life event stress, workplace stress, and physiological markers of stress was questionable (Steffy & Jones, 1988). In addition, although it was demonstrated that the experience of stressful life events outside of work predicted increased use of alcohol, there was no relationship between work-related stress events and alcohol use with the exception of increased alcohol use associated with perceived job insecurity and the use of alcohol as a coping mechanism being related to increased workload (Steffy & Laker, 1991).

Despite a general support for the model, significant problems have been identified both with the measurement of stressful life experiences and the interpretation of the effects of life events. Rabkin and Struening (1976) described a number of weaknesses with the approach. In their review of the research they highlighted that there had been an over estimation of the robustness of the relationship between stressful life events and illness outcomes and that results often

were based on the use of inappropriate statistical techniques. Further, they raised concern that the measures of stressful life events often had shortcomings with regard to validity and reliability. For example, not all items on questionnaires were relevant to some groups leading to the inaccurate identification of some groups as having been free of stressful life experiences. Criticism also has been directed at the content of items contained in measures of stressful life events because of a tendency for the items to measure affect rather than stress life events per se (Brett, Brief, Burke, George & Webster, 1990).

The effects of memory distortion when retrospectively reporting adverse life events has been raised as a potentially confounding factor (Rabkin & Struening, 1976), with support for this criticism being found in the fact that prospective studies have demonstrated much weaker results than retrospective studies. Therefore, despite receiving research attention, a stressful life events model cannot adequately account for the development of occupational stress, largely because of a failure to address many of the concerns that have been raised about the model.

3.4 Person-environment fit theories

Building on work that had examined motivational processes (e.g., Lewin, 1951; Murray, 1938), attention was directed towards developing a theory specifically designed to explain the development of stress responses at work (French, Caplan & Harrison, 1982; French & Kahn, 1962; French, Rodgers & Cobb, 1974). The theory was derived from the results of a series of studies that examined social influences on individual adjustment, taking into account both

personal and environmental perspectives. Person factors such as personality (Friedman & Rosenman, 1959), locus of control (Rotter, 1966), cognitive hardiness (Kobasa, 1979), and daily hassles (DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982). In addition, work-related stressors such as role conflict and role ambiguity (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964), and role overload or underload (French & Caplan, 1972) were considered.

From these factors, the person-environment fit theory of occupational stress was developed (Caplan, 1983, 1987; Caplan & van Harrison, 1993; French et al., 1982; Harrison, 1978, 1985). The fundamental point of the theory is to emphasize that neither person factors nor environment factors alone can account for the development of occupational stress. Occupational stress is a consequence of a lack of congruence between these two influences.

In addition to the differentiation between person and environment factors, a distinction is made on the basis of whether the person and environment influences are objectively or subjectively experienced (Harrison, 1978). Objective factors refer to either attributes of the person or the environment that exist and are measurable. Subjective factors refer to perceptions that influence the way in which these attributes are interpreted by the individual.

The degree to which fit occurs can be understood in four areas. Firstly, objective person-environment fit occurs when there is congruence between the objective person and the objective environment. Secondly, subjective person-environment fit occurs when there is accordance between the subjective person and the subjective environment. Thirdly, contact with reality has been the term used to

describe a positive relationship between the subjective environment and the objective environment. Finally, accuracy of self-assessment is the term used to describe a correspondence between the subjective person and the objective person (Caplan, 1983; French et al., 1974; Harrison, 1978).

Originally, it was postulated that adaptive functioning and enhanced psychological wellbeing are the consequence of good objective person-environment fit, subjective person-environment fit, contact with reality, and accuracy of self-assessment. However, it was reported that objective person-environment fit had little influence in its own right on psychological wellbeing as it was speculated that objective person-environment fit was always translated by the individual into a subjective person-environment fit interpretation (Caplan, 1983, 1987; French et al., 1982; Harrison, 1985).

Further, it has been reported that there must also be a fit between the demands of the environment and the individual's abilities. Demands refer to job requirements, the expectations placed on the individual in relation to their work role, and the norms of the group or organisation. The individual's abilities relate to the skills required to meet demands, the degree of training received to meet demands, certain talents and aptitudes that can make it easier to meet job demands, and factors such as time and energy or motivation (French & Kahn, 1962; Harrison, 1985).

In addition, it has been considered that it is necessary that there be a match or fit between the needs of the person and the ability of the environment to meet the individual's needs. A good person-environment fit would be considered to occur when the individual's biological and psychological needs and the individual's values

(French & Kahn, 1962; Harrison, 1985) were met by the environment that was able to supply a range of necessary extrinsic and intrinsic resources and rewards such as money or opportunity to achieve (Harrison, 1978). A good person-environment fit with regard to needs and supplies could be likely to result in enhanced feelings of competence and good self-esteem whereas a poor fit would be likely to result in psychological dysfunction, physical illness or negative work-related behaviours such as absenteeism (Morse, 1975).

The P-E fit approach has been applied to the examination of the needs of certain occupational groups such as managerial and executive staff (Glowinkowski & Cooper, 1986), university administrators (Chemers, Hays, Rhodewalt & Wysocki, 1985) and other university employees (Edwards & Rothbard, 1999), middle level executives (Sen, 1992), and vocational teachers both in Scotland and Australia (Pithers & Soden, 1998). In these cases, it is evident that a P-E fit model can be used to successfully identify and evaluate the factors that contribute to the occupational stress responses of these groups.

One of the advantages of this approach is the recognition of both objective and subjective aspects of job stress and the realisation that there are particular worker characteristics that may lead to the reduction or management of occupational stress responses. Therefore, intervention can be based on enhancing the skills necessary to lead to a better person-environment fit.

Of course, shortcomings of this approach have been recognised. These limitations fall into three categories (Edwards, Caplan & Van Harrison, 1998). Firstly, it is evident that the content of the person and environment dimensions are

not specified. The emphasis of the model is on the processes associated with the relationships between both the person and the environment and the development of psychological strain and other outcomes need to be considered for the purposes of understanding content (Campbell, Dunnette, Lawler & Weick, 1970). Secondly, the theory does not predict the nature of the specific relationships with strain. In fact, it has been reported that the nature of the relationship with strain may vary as a function of the content dimension being examined and the specific index of strain or, indeed, across occupational types (Caplan, Cobb, French, Harrison & Pinneau, 1980). Finally, the theory ignores possible methods of resolving personal-environment fit difficulties by failing to consider coping (Edwards et al., 1998). Therefore, although providing some means of understanding the process of the development of an occupational stress response, it does not allow for clarification of the content of the dimensions it considers or encompass all relevant components of the stress-strain relationship.

3.5 Job demand-job control model

The job demand-control model of occupational stress (Karasek, 1979; Karasek & Theorell, 1990) indicates that work stress lies in organisational factors. The model identifies four different types of occupations. A 'high strain' occupation is one involving high demands and low job control, an 'active' occupation is associated with high demands and high control, a 'passive' occupation is characterised by low demands and low control, and a 'low strain' occupation is one with low demands and high control.

There is considerable support for the model (e.g., Noblet, Rodwell & McWilliams, 2001; O'Connor, O'Connor, White & Bundred, 2001; Schnall, Landsbergis & Baker, 1994). Research that has provided this support has examined the relationship between demand and control and the development of strain among Australian government employees (Chapman, Mandryk, Frommer, Eyde & Ferguson, 1990), in US employees (Muntaner, Eaton & Garrison, 1993), employees in service industries (Marshall, Barnett & Sayer, 1997), among employees in the European Union member states (Andries, Kompier & Smulders, 1996), Swedish human service workers (Soederfeldt et al., 1997), and bus drivers (Kompier & Di Martino, 1995).

One well designed study that examined the demand-control model with a large number of employees from five human service groups found some support for the model (de Jonge, Dollard, Dormann, Le Blanc & Houtman, 2000). Some interaction effects on health and wellbeing were demonstrated. These were restricted to specific occupational groups. It was evident that those jobs that were defined by high demand-low control could influence health status. It also was noted that another of the occupation types outlined by the model, namely 'active' occupations were related to positive outcomes in relation to job-related variables such as job challenge and job satisfaction.

It is the case that the demand-control model has been successfully used to explain the influence of work stress on health related outcomes such as cardiovascular disease (e.g., Johnson, Hall & Theorell, 1989; Krantz, Contrada, Hill & Friedler, 1988; Landsbergis et al., 2001; Marmot, Theorell & Siegrist, 2002;

Netterstrom, Kristensen, Moller, Jensen & Schnohr, 1998; Theorell, 2001; Theorell & Karasek, 1996; Tsutsumi et al., 1998), myocardial infarction (Hallqvist, Diderichsen, Theorell, Reuterwall & Ahlbom, 1998), coronary heart disease (Sacker, Bartley, Frith, Fitzpatrick & Marmot, 2001), and elevated blood pressure (Fox, Dwyer & Ganster, 1993; Van Egeren, 1992). In addition, job related outcomes such as job dissatisfaction and psychological consequences such as depression have been accounted for within the framework of the demand-control model (Landsbergis, 1988).

However, there have been mixed results with regard to the influences of psychological and physical demands (Yeung, 2001). For example, among insurance company employees it was evident that high strain was experienced by employees whose jobs fit the 'active' category. That is, employees who reported high demands and high control also experienced high strain. It was concluded that the model could only partially predict the nature of the relationship between demands-control and health-related consequences (Demerouti, Bakker, de Jonge, Janssen & Schaufeli, 2001).

When criticising the model, attention has been drawn to the fact that although main effects on strain have been evident, the results relating to the predicted interactions have been less consistent (de Rijk, Le Blanc, Schaufeli, & de Jonge, 1998; Melamed, Kushnir & Meir, 1991; Wall, Jackson, Mullarkey & Parker, 1996). Explanation for these inconsistencies has focused on what has been described as the inadequate definition and operationalisation of the independent variables involved in the model (Wall et al., 1996). It also should be noted that interaction effects were

not evident despite specific attempts to address previous problems with operationalising independent variables and applying appropriate statistical analyses (Beehr, Glaser, Canali & Wallwey, 2001), and when interaction effects were found, they were of a small magnitude (De Croon, Van Der Beek, Blonk & Frings-Dresen, 2000).

Further, it is been questioned whether the demand-control model has sufficient utility in directing intervention programs (Jones, Bright, Searle & Cooper, 1998). This criticism seemed to be based on the fact that despite the attractiveness of the theoretical simplicity of the model, the variables lacked clarity of definition and were more complex than would be suggested by the straightforwardness of the model. These problems were reported to make it difficult to translate what was learned from the research of the model into practical recommendations for the amelioration of work stress.

It also has been suggested that the relationship between demands and control is not straightforward and can be moderated by other variables. This was demonstrated with regard to the effects of self-efficacy on the demand-control relationship and its influence on burnout among information technology employees (Salanova, Perio & Schaufeli, 2002). Self-efficacy has been implicated by others as a moderator variable (e.g., Schaubroeck & Merritt, 1997).

It has been suggested that the demand-control model oversimplifies the nature of the relationships between work-related variables (e.g., Radmacher & Sheridan, 1995). To account for the complexity of the relationship between variables in an otherwise conceptually simple model, the demand-control model was extended to

include the influence of support. This reconceptualisation postulated that employees in jobs associated with high demands, low control and low support from supervisors or others at work were those most likely to develop negative psychological and physical consequences (Johnson & Hall, 1988).

Support for this extended model has been reported in the literature (e.g., Dean & Pollard, 2001; Dollard, Winefield, Winefield & de Jonge, 2000; Linzer et al., 2002; Pelfrene et al., 2002). It was also reported that greater exposure to high demand-low control-low support jobs exacerbated the negative psychological and job-related effects (Dollard & Winefield, 1998). Further, it has been argued that there is considerable support for the demand-control-support model and that any inconsistencies are a result of the examination of control and support as moderator variables (Van der Doef & Maes, 1999).

However, some studies have failed to support the extended model (e.g., de Jonge, Janssen & Van Breukelen, 1996). Further, it was still evident that the interactions predicted by this extended model were inconsistently reported (e.g., de Lange, Kompier, de Jonge, Taris & Houtman, 2001; Melamed et al., 1991). In addition, others have suggested that the addition of support to the model does not increase its explanatory power (Rafferty, Friend & Landbergis, 2001).

It has been argued that the demand-control model could not replace more comprehensive models of the nature and development of occupational stress (Landsbergis, 1988). Nevertheless, it was pointed out that the demand-control model was very useful in bringing to attention and allowing for the examination of

the influences of differential levels of control in coping with or handling demands at work.

3.6 Effort-reward imbalance model

The effort-reward imbalance model of occupational stress (Siegrist, 1995, 1996) selectively considers the definition supplied by the work role on the link between self-regulatory needs and opportunity provided by the social environment (Peter & Siegrist, 1999). The model focuses on the status associated with the opportunity to perform, contribute and achieve reward. However, obtaining benefits from belonging to an occupational group requires reciprocity (Cosmides & Tooby, 1992). That is, when effort is expended, it is necessary that adequate rewards be received. Rewards can take the form of money, esteem or career opportunities (Peter & Siegrist, 1999). When there is a lack of reciprocity or an imbalance between the effort expended (the cost) and the reward received (the gain), work-related stress conditions may develop.

The fundamental stressor defined by this model is the imbalance between the high demands or obligations associated with the job and the low rewards obtained in any one of the three aforementioned areas (Peter & Siegrist, 1999). Further, a pattern of overcommitment despite lack of reward is considered in the model and is introduced to account for the development of chronic stress reactions.

The consequences of effort-reward imbalance have been reported to be negative changes in health status (Peter, Alfredsson, Knutsson, Siegrist & Westerholm, 1999; Siegrist, 1996) including an increased risk of cardiovascular

disease (Peter, Alfredsson, et al., 1998; Siegrist, 1995) and coronary heart disease (Peter, 1995; Siegrist & Peter, 1994) and the experience of musculoskeletal conditions (Tsutsumi, Ishitake, Peter, Siegrist & Matoba, 2001). When considering employees within similar occupational groups, it was evident that the employees with the greatest effort-reward imbalance reported the greatest and most wide ranging symptoms of ill health (Peter, Geissler & Siegrist, 1998).

In addition, there is support for the proposition that effort-reward imbalance produces negative psychological effects. For example, it was evident that employees experiencing organisational change reported a deterioration in psychological functioning as the gap between effort and reward widened (Tsutsumi, Nagami, Morimoto & Matoba, 2002). General wellbeing was poorest among Dutch employees with the greatest levels of effort-reward imbalance (de Jonge, Bosma, Peter & Siegrist, 2000). It has also been reported that job-related factors such as sickness absence is increased in people with identified effort-reward imbalance (Peter & Siegrist, 1997).

One of the advantages of the effort-reward imbalance model is that it considers specific situational and personal characteristics that are amenable to change. This means that interventions can be formulated within the parameters of the model (Aust et al., 1997).

When comparing the effort-reward imbalance model and the demand-control model, there is evidence to suggest that the two models account for different aspects of the process associated with the development of an occupational stress response (Bosma et al., 1998; Peter, Siegrist, Hallqvist, Reuterwall & Theorell, 2002;

Tsutsumi, Kayaba, Theorell & Siegrist, 2001). The suggestion was made that a combination of both models could best account for the development of occupational stress. Although increases in the predictive power of the combined model were reported (Calnan, Wainwright & Almond, 2000), others have suggested that the increase was only modest (Peter et al., 2002).

In addition, it has been reported that the results obtained from examination of the effort-reward imbalance model have been inconsistent, particularly when objective markers of stress reactions were used (e.g., Hanson, Maas, Meijman & Godaert, 2000). In fact, it was suggested that it was the overcommitment factor that influenced objective stress markers and not the effort-reward imbalance or the interaction between the imbalance and overcommitment (Vrijkotte, Van Doornen & De Geus, 1999).

3.7 A facet model of the job stress sequences

Taking a different approach, Beehr and Newman (1978) attempted to identify the components of occupational stress and to organise these components or facets into a cohesive account of stress at work. Due to the complexity of the experience of occupational stress and the range of influences on its development, the facet model that was developed by Beehr and Newman contains in excess of 150 variables that were identified from a review of both existing research and published opinions related to possible directions for future research.

This large number of variables are assigned to or categorised on the basis of different facets. The personal facet incorporates a range of individual factors that

specifically related to the way in which stress is perceived or experienced by the individual (Beehr & Newman, 1978). Examples of variables in the personal facet would be personality characteristics or level of physical functioning. In keeping with a person-environment fit approach, the components of the personal facet are proposed to interact with the components of the environmental facet although the relationship between these two facets is understood more in terms of interaction than fit. The environment facet comprises variables such as work environment factors, characteristics of the organisation, and non-work stressors that may increase the demand on the individual.

A range of consequences of were identified as flowing from the experience of the factors in each of the facets of the model. These consequences were divided into human outcomes and organisational outcomes. Human outcomes refer to changes in psychological functioning, behaviour change, and reduction in physical health status. Organisational outcomes relate to factors such as absenteeism, poor productivity and high staff turnover.

Categorisation of the variables into different facets makes the model more manageable. However, its breadth precludes its use for explanation or prediction purposes. Nevertheless, the model does provide some form to the broad range of variables that contribute to the development of occupational stress responses.

3.8 Berry's general perspective on stress

The current research has adopted a general perspective on stress, developed by Berry (1998), in its examination of the factors that contribute to the development of

an occupational stress response and the influences on the decision to lodge a workers' compensation claim. This is illustrated in Figure 1. This model adopted the approach that had been used by Beehr and Newman's (1978) model by considering facets of stress and takes into account person-environment fit as an important variable. Although not necessarily superior in explanatory power to some more focused theoretical accounts of the relationship between stressor and strain, the advantage of this model in examining the current research questions is that it allows for the relationships between the factors that influence the stress response to be considered and provides structure to the examination of the multitude of variables that potentially could determine why an individual would lodge a workers' compensation claim for psychological injury.

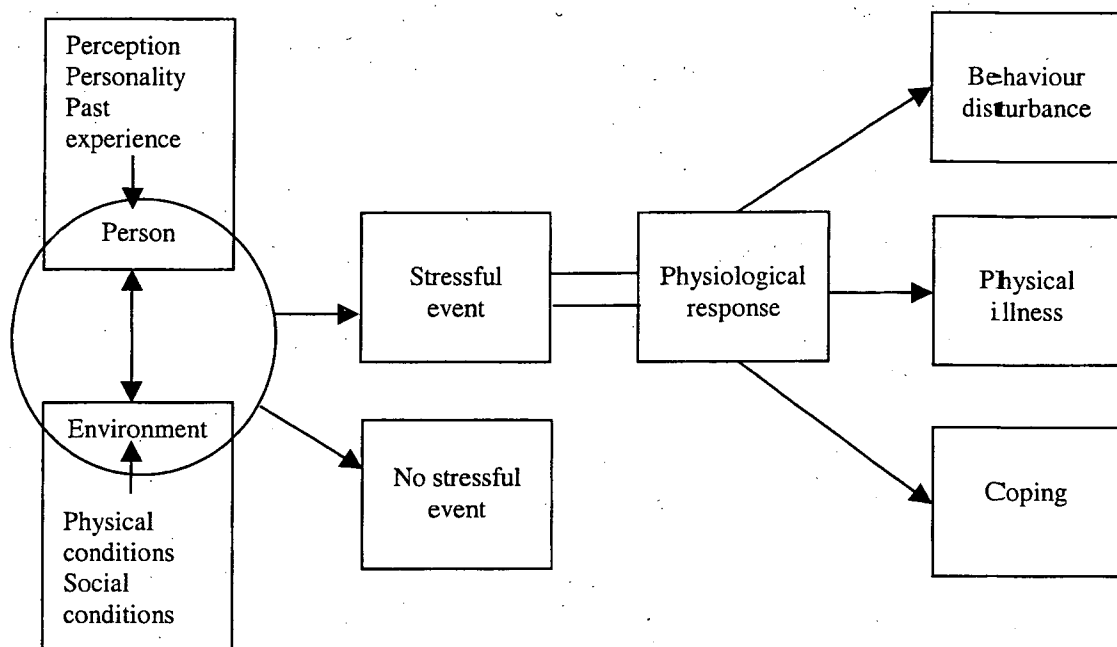


Figure 1.
Berry's model outlining a general perspective on stress (1998).

The components of the model will be discussed in relation to the variables to be examined in the following series of studies. Firstly, Berry (1998) recognised the important influence of the way in which a person perceives or interprets a situation on the reaction of that individual to the event. These influences can come from a number of sources. For example, personality (e.g., Day & Jreige, 2002; Ganster, 1986), cognitive style (e.g., Thompson & Williams, 1995), and past experience (e.g., Ellis & Harper, 1975) can impact on the way in which an individual will react to any experience they may have, including events in their workplace. In reviewing the literature, there are many different personal characteristic variables that may affect the interpretation of events. However, the current study selected inherent coping resources (e.g., Heaney, House, Israel & Mero, 1995), dysfunctional attitudes (e.g.,

Thompson & Williams, 1995), irrational beliefs (e.g., Zingle & Anderson, 1990), and career beliefs (e.g., Naylor & Krumboltz, 1994) as the factors to be examined. The literature pertaining to personal characteristics and the results of the current investigation will be presented in Chapter 4.

Berry's model also acknowledges the influences of the environment on the development of occupational stress. It is clear from the literature that these influences may come from the environment outside of the workplace (e.g., Sherman & Thelen, 1998), from inside the workplace (e.g., Gillespie, Walsh, Winefield, Dua & Stough, 2001) or from the relationship between the demands of non-work and work-related roles (e.g., Frone, Russell & Cooper, 1992a, 1992b). The current study examined these factors by focusing on the experience of stressful life experiences as an indicator of the extent to which more major events can impact on the extent to which an individual will be able to deal with additional stressors at work (e.g., Sherman & Thelen, 1998) and daily hassles as a indicator of the influence of the cumulative effects of lower grade stressors on the general stress responses experienced by individuals (e.g., Carr, Roseingrave & Fitzgerald, 1996). In addition, the aspects of the work environment that impact on the development of occupational stress were considered (e.g., Gillespie et al., 2001). The literature that is relevant to these factors along with the results of the current investigation considering these variables will be presented in Chapter 5.

Berry's model has incorporated the understanding that events at work may be both stressful and non-stressful and that it is the stressful work events that trigger the occupational stress response. Although some researchers have highlighted this fact

(e.g., McLaren, 1997; Ohsuga, Shimono & Genno, 2001), others have adopted the view that membership in a particular occupational group (e.g., police, paramedic) is stressful irrespective of the variation in the nature of the work events undertaken (e.g., Evans & Carrere, 1991; Jamner, Shapiro, Goldstein & Hug, 1991; Lim, Ong & Phoon, 1987). The current study supports the view that stressful and non-stressful events can be distinguished. In relation to stressful work events, both global (e.g., Deckard & Present, 1989; Tetrick, 1992) and specific stressors (e.g., Haines et al., 1996) have been identified as being associated with the development of occupational stress responses. The current study examines both global and specific stressors. The literature pertaining to workplace stressors and the result of the current study will be presented in Chapter 6.

Berry's model acknowledges that there can be an immediate psychophysiological response that may determine the extent to which a stressful event at work will be manageable for the individual or will lead to the development of psychosomatic symptoms, physical illness and psychological distress. There is an extensive body of evidence to suggest that stressful work events are associated with elevated arousal responses that have been considered to be characteristic of an occupational stress response (e.g., Kozena, Horvath, Frantik & Nosek, 1995; Smith, 1988). For the purposes of the current study, it was speculated that it is not only the immediate psychophysiological response to the stressful work event that will contribute to a negative outcome, but also an immediate psychological response. For example, an immediate fear response along with an increase in heart rate were determined to be important in the development of a phobic response to the

workplace (Carson, Haines & Williams, 1998a, 1998b, 1998c, 2000; Haines, Williams & Carson, 2002). This addition to the components of the model was not considered to be out of keeping with the general aim of the inclusion of the psychophysiological response in the model. Chapter 7 reviews the literature relating to psychophysiological responses to workplace stressors and presents the results of the current study that used personalised guided imagery to recreate stressful and nonstressful work events.

A range of negative outcomes of exposure to occupational stress have been identified and these outcomes have been recognised in Berry's model. Behavioural disturbance and psychological response (e.g., Doctor, Curtis & Isaacs, 1994; Smith & de Chesnay, 1994), physical illness and psychosomatic symptoms (e.g., Rathod et al., 2000; Undén, 1996), changes in the use of coping strategies to deal with the problematic situation (e.g., Burke & Greenglass, 2000a; Clohessy & Ehlers, 1999) all have been identified as consequences of exposure to work stressors. The literature relating to these variables and to changes in job satisfaction as a function of exposure to work stressors will be reviewed and the results of the current study will be presented in Chapter 8.

Finally, Berry's model highlighted the potential relationships between variables in contributing to the various outcomes. These relationships were considered in Chapter 9 where the factors that have been demonstrated to predict the development of negative outcomes will be reviewed and the results of a statistical exploration of the predictors of the outcomes in the current study will be presented.

CHAPTER 4

PERSONAL CONTRIBUTORS TO WORK STRESS

4.1 Introduction

Following from Berry's model, the aim of this study was to consider the personal contributors to the development of occupational stress. Since individuals experiencing similar stressors may not develop the same symptoms, and some may not develop occupational stress symptoms at all, it follows that other factors are operating. These factors may lay with the individual themselves. Firstly, certain personality types may increase an individual's potential to develop stress responses. Secondly, occupational stress may develop in individuals with poor coping resources. Thirdly, an individual's view of the world may increase the potential of developing symptoms. Fourthly, an individual's view of their career path may lead to the development of a work-related stress response.

It is the case that potential work stressors exist in all jobs. However, the extent to which a person will develop a stress response following exposure to such a stressor will be determined to a greater extent by a range of individual difference factors (Payne, 1988). That is, whether an event will be viewed as negative or stressful will be a function of the perceptions of the individual (Lazarus & Folkman, 1984).

There is a broad range of potential individual differences or personality styles that will influence responses to workplace events and, ultimately, impact on occupational satisfaction and psychological and physical health (Burke, 1988; Cooper & Payne, 1991; Kirkcaldy, Cooper, Furnham & Brown, 1993; Kirkcaldy, Furnham & Cooper, 1994). It generally is considered that the relationship between the experience of workplace stressors and the outcome variables of satisfaction and

health is either moderated or mediated by these individual difference factors (Cooper, 1996). The examination of these individual differences has been approached in a number of ways.

4.1.1 Locus of control

There is a substantial body of literature that has applied the concept of locus of control to the understanding of the stress process (see Hewitt & Flett, 1996; Hurrell & Murphy, 1991; Parkes, 1994; Payne, 1988). This literature has highlighted that locus of control has a significant relationship with the development of stress reactions and that locus of control is not necessarily a static phenomenon but one that may change as a function of the demands of a specific situation.

It was Rotter (1966) who introduced the concept of internal-external locus of control. Rotter's theory put forward the proposition that people have generalised expectancies that are based on past experiences. These expectancies are concerned with the source of control of environmental reinforcements. People with an internal locus of control accept responsibility for and believe themselves to be in control of their own destinies. It is the view of people with an internal locus of control that their own actions can influence the outcomes. Reinforcement is received through the exertion of personal effort and demonstration of personal abilities.

In contrast, individuals with an external locus of control hold the view that fate, luck or random events, all of which are beyond their control, exert the greatest influence on outcomes. With outcomes beyond their personal influence or responsibility, rewards and punishments are at the whim of others or the

environment. There is little doubt that the idea of locus of control has generated an enormous amount of research (Furnham & Steele, 1993) despite the criticisms of the distinction between internal-external locus of control (e.g., O'Brien, 1981).

When applied to the understanding of occupational stress, research has demonstrated that individuals who hold an external locus of control tend to report more job stressors and negative work events such as role ambiguity (Batlis, 1980; Von Emster & Harrison, 1998), burnout (Glogow, 1986; Koeske & Kirk, 1995), and lack of professional latitude (Arsenault, Dolan & Van Ameringen, 1991) than do individuals with an internal locus of control. In terms of the consequences of exposure to workplace stressors, locus of control has been demonstrated to act as a mediator variable. For example, when role conflict was present as a stressor, individuals with external locus of control reported poorer physical health than did individuals with internal locus of control (Fusilier, Ganster & Mayes, 1987). However, if a situation was identified as possessing little objective control for an individual, then individuals with internal locus of control reported more negative consequences than did individuals with external locus of control (Kolb & Aiello, 1996; Marino & White, 1985).

It is evident from this literature that there seems to be little consistency from research results supporting either internal locus of control or external locus of control as being the style that would most likely result in the development of an occupational stress response. This theme is evident throughout the occupational stress-locus of control literature. For example, so-called 'stress resistant' nurses were determined to be those with the ability to adapt to conditions of high stress, had

better self-esteem and had an internal locus of control (Boey, 1998). These factors were not evident in distressed nurses who experienced poorer mental health under conditions of high workplace stress. From a study of AIDS care nurses, it was evident that individuals with internal locus of control were less likely to experience elevated levels of burnout (Gueritault-Chalvin, Kalichman, Demi & Peterson, 2000).

However, Hahn (2000) believed that the results of these types of studies were confounded by the shortcomings in the way the data were collected. To overcome the concerns about memory distortion in retrospective reporting, a diary methodology was used. Examining interpersonal locus of control, it was evident that there was no difference between individuals with external locus of control and those with internal locus of control in the number of work-related stressors they reported. In contrast with much of the previous literature, it was the individuals with internal locus of control who reported significantly more anger and self-reported health symptoms in response to workplace stressors. The lack of objective control over these types of events was identified as the factor that would have been problematic for the people with internal locus of control.

It would seem, then, that the relationship between locus of control and the experience of work-related stress responses is complex and sensitive to the influences of other workplace characteristics. Indeed, there may be a myriad of variables that would influence the way in which individuals with internal or external locus of control viewed the workplace experiences. When attempting to determine whether personal characteristics influence compensated stress responses, the potentially confounding effects of, as yet, unknown variables would not clarify the

factors that influence an occupationally stressed person's decision to seek workers' compensation.

4.1.2 Type A personality

Although personality characteristics in general have been the focus of attention in the occupational stress literature (e.g., Deary, Agius & Sadler, 1996; Eastburg, Williamson, Gorsuch & Ridley, 1994; Hart, Wearing & Headey, 1995; Parkes, 1994; Perrott & Taylor, 1995), by far the most attention has been given to Type A personality. Type A personality has been defined as a strong drive to attain goals that generally are poorly defined (Friedman & Rosen, 1959). People with Type A personality characteristics are intensely competitive, desire and pursue recognition and advancement, and engage themselves in multiple, competing activities that are subject to time restrictions. They have been described as being mentally and physically alert, often aggressive and hostile, and as having a strong reactivity to stress.

With the knowledge that Type A personality characteristics are amenable to change (Price, 1988), ameliorating the excessively strong reaction to stressful situations, Type A personality has been considered to be an appropriate focus of attention for researchers concerned with the modification of the negative effects of work-related stress (Sharpley, Dua, Reynolds & Acosta, 1995).

The characteristics associated with Type A personality could be construed as being desirable at work and, indeed, are often rewarded in the workplace because of the increased productivity of individuals with Type A personality (Ganster, Sime &

Mayes, 1989). However, negative effects of Type A behaviour also have been recognised (Day & Jreige, 2002). Reported psychological consequences have included negative emotional responses such as angry feelings and irritability (e.g., Lee, Ashford & Jamieson, 1993), psychosomatic symptoms (Jamal, 1990; Spector & O'Connell, 1994) and nightmares (Nesca & Koulack, 1991; Tan & Hicks, 1995). Reported physical consequences have included an increased risk of coronary heart disease (e.g., Friedman, 1989), increased morbidity in older individuals (Shoham-Yakubovich, Ragland, Brand, & Syme, 1988), and migraine headaches (Barling & Charbonneau, 1992).

Research has considered the combination of negative psychological and physical outcomes. From a study examining University staff, it was evident that Type A behaviour was significantly related to a range of outcome variables. These included higher anxiety scores, more daily hassles and more job stress than Type B participants. Participants with Type A behaviours also reported poorer physical health with more injuries, accident and illness. Among other individual traits measured in that study, Type A personality was the second most powerful predictor of the outcome measures (Sharpley et al., 1995).

Relationships between Type A personality and the experience of specific work stressors have been reported that appear to be a function of the sample examined or the particular focus of the research. For example, Type A personality was reported to be associated with work overload and a greater frequency of events at work that were identified as stressful (Burke & Weir, 1980). Relationships between Type A personality and role ambiguity and role conflict were identified (Jamal, 1990).

Interestingly, Type A personality also has been reported to be associated with more positive work events such as greater control over work-related tasks (Kushnir & Melamed, 1991) and better skill utilisation (Burke & Weir, 1980).

More researchers are recognising Type A personality to be a combination of two factors; achievement striving and impatience irritability (Day & Jreige, 2002). It may be that achievement striving, in itself, is not problematic. For example, impatience irritability was the factor that was related to stressful outcomes such as poorer physical health (Spector & O'Connell, 1994; Spence, Helmreich & Pred, 1987), depression (Bluen, Barling & Burns, 1990), test anxiety (Volkmer & Feather, 1991) and respiratory infections (Barling & Charbonneau, 1992).

As mentioned, Type A personality has been linked to the development of negative physical outcomes. Indeed, a considerable amount of research effort has been directed towards examination of this relationship (Kirkcaldy, Cooper & Furnham, 1999). Historically, reports have been made of a relationship between Type A personality and physical illnesses that have been reported to have a stress-related aetiology such as coronary heart disease (Friedman & Rosenman, 1974).

However, it also has been argued that the results from this type of research have been inconsistent (Shekelle, Gale & Norusis, 1985). As with other, previously mentioned research, it may not be Type A personality as such that is related to physical ill health. For example, it has been suggested that hostility, a component of Type A personality, is the variable that is a better predictor of cardiac problems (e.g., Williams et al., 1980). Others (e.g., Miller, Turner, Tindale, Posavac & Dugoni,

1991) have suggested that the inconsistent results may be a function of the nature of the subject samples examined in the research.

It seems that, as with the locus of control literature, there is evidence that there are components of Type A personality that may be problematic with regard to psychological and physical outcomes but there appears to be little agreement about the specific nature of these characteristics. As mentioned in relation to locus of control, it would be necessary to apply well defined characteristics to the understanding of compensated occupational stress so that interpretable results could be obtained.

The difficulty in examining variables where the complexity of the characteristics are not yet understood is highlighted by the results of a well designed study by Kirkcaldy and colleagues (1999). They investigated the relationship between Type A behaviour and locus of control in relation to the stress responses of German and British managers. They found that British but not German people with Type A behaviour and internal locus of control reported better job satisfaction, physical health and psychological functioning. All people with external locus of control who displayed either Type A or Type B behaviours reported more psychological dysfunction but only people with Type B behaviours and external locus of control reported more physical ill health. The undertaking of examining these complex variables and interpreting their influence on a separate factor such as compensated stress responses is fraught with difficulty until the nature of the interactions of these variables is further investigated.

4.1.3 Cognitive hardiness

An alternative conceptualisation of the contribution of personal influences on the experience of occupational stress has come from the research on cognitive hardiness. This characteristic has been described as a composite variable that is defined by the perception of control, challenge and commitment (Sharpley et al., 1995). It has been found to act as a buffer against the development of physical illness (Kobasa, 1979; Kobasa, Maddi & Kahn, 1982). That is, individuals who have high levels of cognitive hardiness do not succumb to physical illness when exposed to highly stressful situations (Kobasa, 1979). It also has been reported that cognitive hardiness protects people from the experience of intense psychological distress (Nowack, 1989).

The extent of the protection provided by cognitive hardiness was demonstrated in research by Sharpley et al. (1995). They reported that people who had high levels of cognitive hardiness had lower levels of anxiety, fewer daily hassles, less job stress, better physical health, and fewer injuries, accidents and illnesses than participants who had low levels of cognitive hardiness. In fact, cognitive hardiness was determined to be the most powerful predictor of these measures from a range of personal and other factors.

However, the concept of cognitive hardiness may have some limitations (Jennings & Staggars, 1994). In particular, it has been reported that of the three components, only control and commitment but not challenge were related to health outcomes (Hull, Van Treuren & Virnelli, 1987). In fact, the commitment component of cognitive hardiness has been criticised as being indistinguishable from social

support (Ganellen & Blaney, 1984). In addition, there has been debate as to whether cognitive hardiness can be separated from self-confidence (Holahan & Moos, 1985) or self-efficacy (Pollack, 1989).

The lack of clear definition makes this variable problematic when examined in relation to its influence on compensated stress responses. As with other composite variables such as locus of control and Type A personality, it becomes difficult to determine which aspects of the variable interact with other influences to produce an interpretable result. Further, the similarities between this variable and others, for example, self-confidence, social support, and self-efficacy, further cloud the issue. Therefore, although interesting in their own right, these variables may make it more difficult to examine the research target, than clarify the situation.

4.1.4 Negative affectivity

Another personal contributor to the experience of occupational stress has been postulated to be negative affectivity (Jex & Spector, 1996). This has been described as a general personality trait that is characterised by a tendency to experience negative emotionality and poor self-concept (Watson & Clark, 1984). The attention of these individuals has been said to be on the negative aspects of events leading to the frequent experience of psychological distress. This negative interpretation of events has been reported to occur even when objective evidence of the existence of a stressor is not available (Watson, Pennebaker & Folger, 1987). Therefore, negative affectivity affects not only the individual's perception of the world, but the quality of their inner experience.

Earlier research indicated a strong influence of negative affectivity on the relationship between the experience of a stressor and the development of negative psychological outcomes (Brief, Burke, George, Robinson & Webster, 1988). However, an extension of this earlier work failed to detect the same strength of the influence of negative affectivity although it did still exert some influence on the occupational stressor-strain relationship (Jex & Spector, 1996). The explanation for this failure to replicate the results was suggested to lie in the fact that the earlier research used a life events approach to identification of the stressor, an approach that has been fraught with difficulty (e.g., Brett et al., 1990; Rabkin & Struening, 1976).

Nevertheless, in comparison with people with low levels of trait negative affectivity, those with high levels of trait negative affectivity have been reported to demonstrate a tendency to focus on negative aspects of inner experience and the external environment (Larsen, 1992), to misinterpret routine problems as more negative than warranted (Watson & Pennebaker, 1989), to report more somatic symptoms (Affleck, Tennen, Urrows & Higgins, 1992), and to identify more laboratory controlled events as stressful (Harkins, Price & Braith, 1989). In addition, hypervigilance (Watson & Pennebaker, 1989) and catastrophising when faced with stressful situations (Tellegen et al., 1988) have been reported.

It also has been suggested that negative affectivity significantly influences both occupational stress and job satisfaction (Brief et al., 1988; Watson, et al., 1987), with more occupational stress and less job satisfaction being reported by people who have high levels of trait negative affectivity. It has been suggested that the clarification of stressor-strain relationships becomes problematic because of the

confounding effects of negative affectivity (Watson & Pennebaker, 1989; Watson & Tellegen, 1985). More recently, investigations have focused on the influences of trait negative affectivity on work-related variables such as decision-making processes (Chartrand, Rose, Elliott, Marmarosh & Caldwell, 1993) and response to work stressors (Parkes, 1990).

However, the research examining the influences of trait negative affectivity have not always reported consistent results (Elliott, Chartrand & Harkins, 1994). Although Brief and colleagues (1988) reported that trait negative affectivity significantly contributed to the understanding of the work stressor-strain relationship, more recent work cast doubt of the strength of the explanation provided by the examination of negative affectivity. For example, little shared variance was evident when consideration was given to employees who were influenced by different types of work environments (Chen & Spector, 1991). This even was found to be the case when employees from the same occupational groups were considered. Whereas Hills and Norvell (1991) reported that negative affectivity was a better predictor than others examined of somatic complaints and burnout among male police officers, Schaubroeck, Ganster and Fox (1992) suggested that the detrimental effect of negative affectivity was not a direct one. That is, negative affectivity influenced the relationship between work stressors and the development of depression and somatic symptoms by influencing the coping strategies adopted by individuals to deal with work-related problem situations.

Finally, it has been reported that trait negative affectivity may not have a global influence on the stressor-strain relationship as was suggested by Watson and

Clark (1984). An investigation of the influence of negative affectivity among teachers and journalists indicated that negative affectivity influenced the development of distress only in some circumstances such as those associated with tolerance and control, but not other circumstances such as those associated with interference (Elliott et al., 1994).

Despite the interesting results produced by the examination of negative affectivity, it must be questioned whether negative affectivity provides a better explanation of the influences of adopting a negative or pessimistic interpretation of events than do more, well established cognitive approaches to the understanding of the way in which negative emotional responses develop from misinterpretation or negative interpretations of the circumstances. Both Beck (1967) and Ellis (Ellis & Harper, 1975) have provided explanations that seem not to substantially differ from the concept of negative affectivity and both Beck's and Ellis' views have been the focus of considerable research.

4.1.5 Dysfunctional attitudes

In the area of cognitive dysfunction, there are two theorists who are the most prominent; Beck (see Beck, 1967) and Ellis (Ellis & Harper, 1975). Although concerned with the same area, their conceptualisations substantially differ (Lewinsohn, Larson & Munoz, 1982), and there is research evidence that the two approaches contribute in different ways to the understanding of the effects of cognitive dysfunction (Lohr & Bonge, 1981) suggesting that different cognitive mechanisms are being considered. Ellis has considered the content of thought, a

thematic approach, as important in the development of symptomatology, whereas Beck has examined the nature of thought form or a structural approach.

Beck (1967, 1987; Beck, Rush, Shaw & Emery, 1979) suggested that thoughts that have an illogical structure are related to a cognitive triad; patterns of thinking related to the self, the world, and the future. These illogical thoughts have been characterised by overgeneralising, selective abstraction, excessive responsibility, assuming temporal causality, self-references, catastrophising and dichotomous thinking (Beck, 1967). The development of these styles of thinking has been related to vulnerability, need for approval, success-perfectionism, need to please others, imperatives, need to impress, avoidance of appearing weak, control over emotions, and disapproval-dependence (Beck, Brown, Steer & Weissman, 1991). These relationships have been supported by others (e.g., Dyck, 1992).

There is evidence supporting the influence of the styles of thinking outlined by Beck (1967) on occupational stress responses. For example, Okada and Ishikuma (1999) demonstrated a significant relationship between the automatic thoughts as defined by Beck and burnout in nurses. The identification of this relationship was used as evidence for the proposed efficacy of cognitive therapy in managing burnout. In another sample, the presence of dysfunctional attitudes was associated with the development of high levels of occupational stress but not low levels of occupational stress (Goh & Oei, 1999).

Further, Thompson and Williams (1995) examined the relationships between the experience of work stressors, depressogenic cognitions such as those outlined by Beck, and symptoms of burnout in Australian teachers. The results indicated that

dysfunctional thoughts, specifically overgeneralisation, significantly predicted burnout among that sample and were a better predictor than a range of other variables such as demographic characteristics.

Finally, dysfunctional attitudes were associated with psychological wellbeing among white collar public sector employees (Guppy & Weatherstone, 1997). In particular, attitudes related to vulnerability, impression management, need for approval and success-perfectionism were related to poorer psychological functioning.

In summary, the literature pertaining to dysfunctional attitudes suggests that depressogenic cognitions such as those proposed by Beck (1967) can influence the development of work-related stress responses. If lodging a workers' compensation claim for psychological injury is taken as a measure of the severity of a work-related stress response, then it would be expected that this personal factor would be most evident among claimants compared with people who had not lodged a workers' compensation claim for a stress-related condition.

4.1.6 Irrational beliefs

As mentioned, Ellis (1994) also examined cognitive factors in the development of symptomatology. He proposed a conceptually simple model that was developed to account for a wide range of psychological disturbance. It was suggested that irrational self-talk and negative evaluation resulted in psychological symptomatology (Ellis & Harper, 1975). In keeping with the concepts associated with negative affectivity, Ellis' model postulated that it is the interpretation of the

event that influences the psychological outcome and not the event itself. Ellis (1994) identified 10 core irrational beliefs, the endorsement of which was postulated to result in psychological disturbance.

Relative little research exists linking the endorsement of irrational beliefs and the development of work-related stress responses. One study reported that the endorsement of irrational beliefs exacerbated levels of vocational strain in Australian teachers (Haines, Williams, Davidson & Long, 2002). Further, the association between higher endorsement of irrational beliefs and more severe work-related stress was noted among Canadian teachers (Zingle & Anderson, 1990).

However, there is a substantial body of literature that evaluates the efficacy of Rational Emotive Therapy (RET) and its more current formulation, Rational Emotive Behaviour Therapy (REBT), in ameliorating symptoms of work-stress. For example, RET proved to be useful in controlling irrational beliefs relating to catastrophising, demands and self-evaluation among stockbrokers (Criddle, 1993). These irrational beliefs were postulated to most commonly underlie the development of work-related stress symptoms.

Further, it was demonstrated among female production workers that REBT was successful in reducing burnout symptoms, tension and listlessness from pre-treatment levels. The reduction in cognitive weariness and work-home conflict from pre-treatment levels were not significant but the post-treatment levels were still significantly lower than those of a control group who did not receive REBT (Malkinson, Kushnir & Weisberg, 1997). The improvements in burnout and tension were maintained over a 12 month period.

Finally, improvements in assertiveness, somatic complaints and irrationality were reported after the administration of an RET intervention for a non-clinical safety officer group (Kushnir & Malkinson, 1993). Interesting, the other variable measured, cognitive weariness, was significantly reduced by 18 months post-treatment. Indeed, the greatest and most sustained improvement was in relation to cognitive weariness.

Therefore, although the influence of irrational beliefs on the development of work-related stress responses has received relatively little attention, it could be argued that the good results obtained from the application of RET or REBT in the workplace, implies that irrationality does have a role in the development of occupational stress and, potentially, in compensated psychological injury.

4.1.7 Career beliefs

If irrational beliefs in general can influence the development of occupational stress responses and the application of RET or REBT can result in better psychological functioning at work, then beliefs about career opportunities and development may also influence psychological status at work.

In general, career beliefs have been examined within the context of career counselling (e.g., Elliott, 1995; Krumboltz, 1990) where it has been determined that dysfunctional career beliefs hinder successful decision making when making career choices (e.g., Elliott, 1995; Krumboltz & Vosvick, 1996). Although criticised in terms of the overlap between beliefs and emotions with regard to career (e.g., Walsh, 1994), it has been demonstrated that career beliefs are separate from the aptitudes

and interests normally considered when examining the fit between the person and the work environment (Naylor & Krumboltz, 1994).

The concept of career beliefs may have some relevance when examining occupational stress in general, and workers' compensation for psychological injury in particular. For example, career beliefs have been demonstrated to interact with social experiences to influence the way in which an individual approaches their work role (Schnorr & Ware, 2001) suggesting that the views a person holds about their career ultimately can influence the way in which a person copes in their selected job. Further, a strong association has been demonstrated between self-doubting career beliefs and career indecision with level with disability being a significant predictor of career indecision (Enright, 1996). Finding oneself in a job that did not match the views held about career, could either create an occupational stress response or exacerbate an existing response.

4.1.8 Coping resources

The inherent resources available to an individual may determine whether an occupational stress response would develop and whether a workers' compensation claim would be lodged. Whereas coping strategies are the outcome of coping efforts following exposure to a challenging event, coping resources have been viewed as a factor that may contribute to the development of the response to the challenge. That is, coping resources refer to dispositional or environmental factors that are available to the individual when developing or choosing coping strategies (see Moos & Billings, 1982). Therefore, coping resources have been defined as the personal and

inherent resources that a person has available to him or her that enable that individual to manage stressors in an effective way, to recover faster and to reduce the number or severity of symptoms that develop (Hammer & Marting, 1988).

There is a problem with interpreting the literature in relation to coping. Despite the seemingly obvious distinction between coping resources and coping strategies, these terms have been used interchangeably in some research. In addition, the term coping skills (e.g., Fagin et al., 1996; Lim, 1999) has been used to refer to either coping resources or coping strategies. The interpretation is made more complex when consideration also is given to coping style (e.g., Biggam, Power & MacDonald, 1997).

Heaney and colleagues (1995) recognised this problem. They postulated a causal reciprocity between coping resources applicable to the workplace and the behaviours adopted by employees to assist with coping. The results of their investigation indicated that both organisational and social coping resources affected the coping behaviour of participants (Heaney et al., 1995) supporting the proposition that coping resources and coping strategies may be differentiated.

Despite the limitations, the availability and use of coping resources has been the focus of research in occupational stress (e.g., Ghosh, 2000; Pithers & Fogarty, 1995; Reid, 1999; Roskies, Louis-Guerin & Founier, 1993; Sowa, May & Niles, 1994). Indeed, it has been argued that it is essential that coping resources along with other personal, environmental and situational factors be included in models of occupational stress (Lindorff, 1995).

In general, although coping ability may have an indirect effect on occupational stress, such as the effect that was noted among staff auditors in one study (Fogarty, 1996), coping resources have been reported to have a direct effect on occupational stress outcomes (Brotheridge, 2001; Callan, Terry & Schweitzer, 1994; Mak & Mueller, 2000). Specifically, this has been demonstrated with regard to personal resources (Folkman, Lazarus, Gruen & DeLongis, 1986; Holahan & Moos, 1987; Kobasa et al., 1982; Matheny, Gfroerer & Harris, 2000; Shaw, Fields, Thacker & Fisher, 1993).

However, it also is the case that coping resources have been presented as a moderator variable. For example, in a sample of Hispanic workers, coping resources were reported to act as a moderator variable between perceived discrimination and the outcomes of organisational commitment, job satisfaction and work tension (Sanchez & Brock, 1996). In explanation, it has been suggested that the buffering role of coping resources only is apparent at excessively high levels of stress (Callan, et al., 1994).

Further, coping resources have been assigned a role as a mediating variable. For example, an examination of the coping resources of Norwegian waiters and cooks found that these resources influenced the relationship between work stress and the outcome variable of excessive alcohol consumption (Kjaerheim, Haldorsen, Andersen, Mykletun & Aasland, 1997).

The problem may lie in the fact that coping resources are not a unitary factor. Differentiation has been made, for example, between personal, social, organisational and environmental coping resources (see Ashford, 1988; Callan & Dickson, 1992;

Cohen & Wills, 1985; Heaney et al., 1995; Holahan & Moos, 1987; Kobasa et al., 1982). It may be that the different coping resources function in different ways. It would be necessary to examine different coping resources separately when considering the link between them and the development of occupational stress responses and the lodging of workers' compensation claims.

4.2 The current study

The aim of the current study was to examine the influences of personal variables on the development of occupational stress and the decision to lodge a workers' compensation claim for psychological injury. As it has been demonstrated that having few effective coping resources would be detrimental to the ability to meet everyday challenges, it was hypothesised that the Compensation group would obtain the poorest scores on a measure of specific coping resources, followed by the Assistance group, and then the Stressed group, with the No Stress group obtaining the best scores. It was evident that the endorsement of both dysfunctional attitudes and irrational beliefs were associated with more severe symptomatology. Therefore, it was expected that the Compensation group would report the strongest endorsement of these attitudes and beliefs, followed by the Assistance group, then the Stressed group, and then the No Stress group. Finally, in relation to the beliefs and views one has about career options and given the fact that endorsement indicative of self-doubt has been linked with poorer job-related factors, then it was expected that the Compensation group would have the most deficient scores, followed by the Assistance group, the Stressed group, then the No Stress group.

4.3 Method

4.3.1 Participants

Seventy-four individuals participated in the study. These people were recruited from advertisements in the local media, private clinical psychology practice, rehabilitation providers and the University population. All participants were required to have been employed at some time and to have experienced at least one stressful work event that they could recall.

The participants were divided into four groups on the basis of their experiences with work-related stress. The first group had developed psychological symptoms as a result of exposure to work-related stressors, had sought professional assistance for the amelioration of these symptoms, and had lodged a workers' compensation claim for psychological injury (n=22). This group was called the Compensation group. Secondly, individuals who had developed psychological symptoms as a result of exposure to work-related stressors and who had sought professional assistance for the management of the symptoms but who had not lodged a workers' compensation claim (n=21) were labelled the Assistance group. Thirdly, participants who developed psychological symptoms as a consequence of exposure to workplace stressors but who had not sought professional help for the management of the symptoms and who had not lodged a workers' compensation claim (n=11) were referred to as the Stressed group. Finally, participants who had been exposed to workplace stressors but who had not developed symptoms, had not sought professional help, and who had not lodged a workers' compensation claim (n=20)

were referred to as the No Stress Group. Group allocation was made on the basis of information obtained from the General Work History Questionnaire.

Participants were from a range of occupational groups and were heterogeneous in terms of non-work characteristics. The occupations of the group members are presented in Appendix A. Participants were not preselected on the basis of other factors. The basis of the investigation was to determine which characteristics were indicative of workers who have experienced extreme stress at work and received workers' compensation.

Ethical approval for the study was obtained from the University of Tasmania. Copies of the consent form and the information sheet are presented in Appendix B.

4.3.2 Materials

All questionnaires used in Study 1 have been presented in Appendix C.

The General Work History Questionnaire, designed by the author, was administered verbally to participants to collect information concerning a range of demographic and work-related variables. General demographic information such as age, sex, marital status and education level was obtained. Work-related information included nature of employment, level of responsibility, duration of total employment and duration in current position. Work stress information included previous history of work stress, nature of onset of symptoms, professional help sought regarding symptoms of work stress, and type of leave used to manage symptoms of work stress. Where relevant, information regarding workers' compensation was also collected. Items included stage of the claim and return to work outcomes.

The Coping Resources Inventory (Hammer & Marting, 1988) was used to access the range of inherent and external coping resources available to each participant. The scale provided a total score, and scores for five subscales. The Cognitive subscale measured positive feelings towards oneself and others in a general optimistic attitude. The Social subscale assessed the social support network of the individual. The Emotional subscale measured the individual's acceptance and expression of affect, behaviours which have been seen to reduce the long-term effects of stress. The Spiritual/Philosophical subscale measured religious, familial, cultural and personal philosophies, and assessed the extent to which an individual's thoughts and actions were influenced by a solid value base which assisted with coping with stress. The Physical subscale assessed the extent to which the individual engaged in health-promoting behaviour, as such behaviours have been demonstrated to reduce responses to stress and promote recovery from stress. Cronbach's alpha coefficients for internal consistency for each subscale were as follows: Cognitive .77; Social .79; Emotional .84 Spiritual/Philosophical .84, and Physical .71. The coefficient for the total scale was .91 (Hammer & Marting, 1988). Despite the relative popularity of this instrument (e.g., Horan, 2002; Moller, McCarthy & Fouladi, 2002; Norlander, Bergman & Archer, 2002; Pollack, Cramer & Varner, 2000), there is little evidence that the psychometric properties of the inventory have received further attention.

The Beliefs Inventory (Davis, Eshelman & McKay, 1995) was administered to determine the extent to which participants endorsed 10 irrational beliefs based on Ellis' rational emotive approach to therapy. Participants completed 100 items using

a dichotomous agree/disagree format. Items were counterbalanced to account for response biases. A score was achieved for each irrational belief, 10 being the highest score possible on a single belief. This version of the test has a forced-choice format and is derived from a version with a different response format. The original version has had extensive psychometric evaluation although it is recognised that it has been suggested that all measures of irrational beliefs need further psychometric work. However, this and other tests of irrational beliefs all have been reported to have excellent face validity (Woodward, Carless & Findlay, 2001).

The Dysfunctional Attitude Scale (DAS: Weissman, 1979) was administered to measure the presence of cognitive distortion as conceived by Beck. The scale was based on Beck's early research on depression, and further theories regarding individual cognitive distortions leading to emotional disturbances. The scale consists of 40 items concerning a range of beliefs individuals may hold, and respondents indicated on a seven point scale to what extent they believe each item. A single total Dysfunctional Attitude score was calculated. A higher score indicated higher levels of distorted thinking.

A validation study of the Dysfunctional Attitude Scale was conducted by Weissman (1979). Homogeneity reliability ranged from 0.89 to 0.92, test-retest reliability was 0.84. The relationship between dysfunctional attitudes and the intensity of depression was the most enduring association. Overall, it was found to be practical, reliable and valid in college (Weissman, 1979) and psychiatric samples (Beck, et al, 1991; Dobson & Breiter, 1983).

The Career Beliefs Inventory (Krumboltz, 1991) was used to identify career beliefs that have been demonstrated to influence career decisions. The scale consisted of 25 subscales. These included Employment Status, Career Plans, Acceptance of Uncertainty, Openness, Achievement, College Education, Intrinsic Satisfaction, Peer Equality, Structured Work Environment, Control, Responsibility, Approval of Others, Self-Other Comparison, Occupation/College Variation, Career Path Flexibility, Post-Training Transition, Job Experimentation, Relocation, Improving Self, Persisting While Uncertain, Taking Risks, Learning Job Skills, Negotiating/Searching, Overcoming Obstacles, Working Hard.

In terms of reliability of the inventory, of the 25 subscales, 10 were based upon 2 items each. The subscale with the most items is made up of 10 items. The author of the test indicated that reliability could be improved by adding items to some of the subscales but saw this as detrimental in terms of the overall number of scale items (Krumboltz, 1991). Nevertheless, he considered the internal consistencies and test-retest reliabilities to be satisfactory. Cronbach alpha reliability coefficients for employed females ranged from .28 for Learning Job Skills to .84 for Career Plans and for employed males they ranged from .25 for Control to .83 for Career Plans. The test-retest reliabilities ranged from .33 for Peer Equality to .61 for Employment Status.

4.3.3 Procedure

Each participant was interviewed and the General Work History Questionnaire administered. Participants then were provided with a questionnaire package that

could be completed at their leisure. Questionnaire packages were completed and returned to the researcher at the laboratory session for Study 4 (see Chapter 7).

4.3.4 Design

A four group questionnaire study was used. The groups were Compensation, Assistance, Stressed and No Stress. The dependent variables were irrational beliefs, dysfunctional attitudes, career beliefs and coping resources.

4.3.5 Data analysis

Analyses of variances were used to examine between group differences on the dependent variables. In addition, chi-square analyses were used to determine differences between the groups in relation to the descriptive variables (demographic history, employment history, work-related stress history). A significant criterion of .05 was adopted.

4.4 Results

Chi-square and ANOVA summary tables are presented in Appendix D.

4.4.1 Description of sample

Demographic information

Table 2 presents the demographic information relating to each group. There was a significant difference between groups in the sex distribution of the sample,

$\chi^2(3, N = 73) = 9.96, p < .02$. There were more males than expected in the Assistance group.

Significant age differences between groups also were apparent, $F(3,69) = 4.32, p < .008$. Post hoc analyses indicated that the Compensation group was older than the Stressed group (*Fisher LSD* = 6.86, $p < .05$) and the No Stress group (*Fisher LSD* = 5.76, $p < .05$). The Assistance group was older than the Stressed group (*Fisher LSD* = 6.86, $p < .05$) and the No Stress group (*Fisher LSD* = 5.76, $p < .05$). There were no differences between the Compensation and the Assistance groups, or between the Stressed group and the No Stress group. No significant differences between groups were evident in relation to marital status or educational level.

Table 2.
The demographic information for each group.

Variable	Level	Data	Comp	Assistance	Stressed	No Stress
Sex	Male	%	33.3	61.9	18.2	20.0
	Female		66.7	38.1	81.8	80.0
Age		M	45.5	44.6	37.4	37.1
		SD	7.1	9.3	13.5	8.4
Marital Status	Single	%	9.5	14.3	27.3	30.0
	Married		80.9	52.4	63.6	60.0
	Sep/div		9.5	33.3	9.1	10.0
Education	Grade 10	%	14.3	19.0	0.0	15.0
	College		14.3	4.8	9.1	20.0
	Trade		0.0	14.3	0.0	0.0
	Tertiary		71.4	61.9	90.9	65.0

Work-related information

Table 3 presents the information pertaining to work-related variables for each of the groups. There were no differences between groups in terms of the nature of their employment, the level of responsibility, or the amount of time in the current position. However, there was a difference between group in the total duration of employment, $F(3,69) = 6.28, p < .0008$. The Compensation group had spent more years in employment than the Stressed group (*Fisher LSD* = 92.81, $p < .05$) and the No Stress group (*Fisher LSD* = 77.91, $p < .05$). The Assistance group had spent more years in employment than the Stressed group (*Fisher LSD* = 92.81, $p < .05$) and the No Stress group (*Fisher LSD* = 77.91, $p < .05$). There were no differences between the Compensation group and the Assistance group, or between the Stressed group and the No Stress group.

Table 3.
The work-related information for each of the groups.

Variable	Level	Data	Comp	Assistance	Stressed	No Stress
Nature of Employ	Full time	%	80.9	90.5	63.6	57.9
	Part time		19.0	9.5	36.4	42.1
Level of Responsib	Execut.	%	11.1	66.7	11.1	11.1
	Middle		38.5	38.5	0.0	23.1
	Supervis		33.3	33.3	16.7	16.7
	Employ		28.6	14.3	20.0	37.1
Duration of employ		M (yr)	24.0	26.0	12.5	15.8
			8.4	11.3	13.5	9.7
Duration in current position		M (yr)	8.0	9.6	4.9	4.2
			8.4	9.1	6.0	4.4

Work-related stress information

Table 4 presents the data pertaining to the work-related stress variables. There was a significant difference between groups in the percentages who reported experiencing work-related stress symptoms in a previous position, $\chi^2(3, N = 73) = 12.51, p < .006$. In particular, the Assistance group was more likely than other groups to report previously having experienced work-related stress and the No Stress group were more likely to report that they had not experienced work-related stress.

There were significant differences between groups in the nature of the current work-related stress, $\chi^2(6, N = 73) = 66.53, p < .0001$. Post hoc comparisons indicated that the Compensation group was more likely than expected to report an acute onset although the majority still reported a chronic onset, and the Assistance group was more likely to report a chronic or insidious onset.

Table 4.
The data pertaining to the work-related stress variables for each of the groups.

Variable	Level	Data	Comp	Assistance	Stressed	No Stress
Prev work stress	Yes	%	38.1	47.6	36.4	0.0
Nature of onset (cur)	Chronic	%	71.4	90.5	81.8	0.0
	Acute		28.6	9.5	18.2	0.0

The following analyses were restricted only to the Compensation and Assistance groups as these were the only two groups who reported their stress

symptoms and sought assistance. Table 5 presents the information relating to the help-seeking behaviour of the two groups.

There was a trend for a difference between groups in the amount of time that elapsed after the onset of symptoms before a report was made to the relevant person in the workplace, $t(23) = 2.02$, $p = .055$, with the Compensation group seeking assistance within a shorter period of time. Because of the large degree of variation in the responses of the participants, medians were calculated. It was evident that the median time before seeking help at work for the Compensation group was 6 weeks, compared with 52 weeks for the Assistance groups.

A significant difference between groups was apparent in the weeks that elapsed prior to seeking professional assistance for work-related stress symptoms, $t(34) = 2.14$, $p < .04$, with the Compensation group seeking assistance within a shorter period of time. The median time to seeking professional help for the Compensation group was 12 weeks compared with 52 weeks for the Assistance group.

In relation to the nature of help sought, there was a trend for the Compensation group to be more likely than expected to seek help from a psychologist, $\chi^2(1, N = 42) = 3.63$, $p = .057$. In addition, significantly more of the Compensation group sought assistance from a psychiatrist, $\chi^2(1, N = 42) = 8.40$, $p < .004$. No differences were apparent in the percentage of each group who sought help from a general practitioner, an employee assistance programme, a counsellor, or other help sources.

Table 5.

The information relating to the help-seeking behaviour for the two groups.

Variable	Level	Data	Comp	Assistance
Weeks before seeking help at work		M	23.1	33.7
		SD	76.2	87.8
Weeks before seeking help from prof		M	24.5	68.8
		SD	31.3	84.1
Sources of prof help	GP	%	90.5	80.9
	EAP		23.8	4.8
	Counsellor		42.9	23.8
	Psychologist		52.4	23.8
	Psychiatrist		42.9	4.8
	Other		4.8	23.8

Table 6 presents the percentages of the Compensation and Assistance groups who used the various job-related options to cope with their symptoms of work stress. There were no differences between groups in the use of these strategies. In addition, it should be noted that only one participant in the Stressed group had used sick leave to cope with occupational stress. No other leave was used and no member of the No Stress group had used any type of leave as a means of dealing with stress at work.

Table 6.

The percentage of the Compensation and Assistance groups who used job-related strategies to cope with work stress symptoms.

Strategy	Comp	Assistance
Sick leave	71.4	61.9
Recreation/annual leave	38.1	23.8
Long service leave	9.5	9.5
Leave without pay	19.0	4.8

When a comparison was made between the Compensation and Assistance groups in the duration of leave for work-related stress symptoms (not compensated leave), there was no significant difference between groups. The Compensation group had taken a mean of 48.29 weeks leave (SD = 46.52) and the Assistance group 76.00 weeks (SD = 77.43). The median time duration of leave for the Compensation group was 31 weeks in comparison with 39 weeks for the Assistance group.

Compensation information

The descriptive information for the Compensation group about their workers' compensation experiences is presented here. Of this group, 73.7% had been successful in their claim for compensation because of psychological injury and 26.3% were in the process of having their claim considered. No member of the compensation group indicated that they had applied for workers' compensation but

had been unsuccessful in their claim. This group had been on compensated leave for a mean of 41.27 weeks (SD = 43.07) with a range from 0 weeks to 156 weeks and a median of 26 weeks.

Of the Compensation group, 71.4% had been involved in a rehabilitation programme aimed at returning them to employed work. Table 7 presents the percentage of the Compensation group who reported each of the return to work outcomes.

Table 7.

The percentage of participants from the Compensation Group who reported each return to work outcome.

Return to work outcome	Percentage of participants
Full time return, same position	5.0
Full time return, different position	20.0
Part time return, same position	30.0
Part time return, different position	20.0
Yet to return to work	20.0
Will not return to work	5.0

4.4.2 Coping resources

From here, analyses included all four groups. Table 8 presents the mean scores and standard deviations for each group for the Coping Resources Inventory subscales. There were no significant differences between groups for any of the

coping resources and none of the scores fell outside the normal range as defined by the authors of the test (Hammer & Marting, 1988).

Table 8.
The means and standard deviations for the Coping Resources Inventory for each of the four groups.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Emotional	43.7	11.6	45.3	9.1	40.1	15.7	49.7	12.9
Spiritual/ philosophical	44.2	8.9	43.1	6.9	45.3	10.0	44.9	12.8
Physical	49.9	7.4	46.0	7.6	43.7	8.3	48.3	4.5
Cognitive	44.3	9.8	41.8	10.6	42.1	11.4	47.6	9.0
Social	45.6	10.0	42.6	10.5	41.2	15.0	48.3	11.4
Global	55.3	39.9	45.8	13.1	43.0	19.0	47.0	12.9

4.4.3 Personal attitudes and beliefs

Table 9 presents the mean scores and standard deviations for the DAS for the four groups. There were no significant differences between groups on this variable.

Table 9.

The mean scores and standard deviations for the DAS for the four groups.

Comp		Assistance		Stressed		No Stress	
M	SD	M	SD	M	SD	M	SD
115.2	24.7	119.2	20.3	124.7	33.2	117.0	19.5

Analyses were conducted on the data relating to the endorsement of irrational beliefs. Table 10 presents the mean scores and standard deviations for each of the ten irrational beliefs as measured by the Beliefs Inventory. There were no significant differences between groups.

Table 10.

The mean scores and standard deviations for the 10 irrational beliefs for each group.

Scale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Approval	3.1	2.5	3.5	2.6	3.8	2.7	4.0	2.3
Competence	2.6	2.6	4.1	2.2	4.6	1.8	4.2	1.9
Guilt	4.6	1.9	5.3	2.0	5.1	2.2	4.1	2.5
Awfulising	5.6	2.2	5.1	2.3	5.1	1.9	5.0	1.4
Externalising	5.1	2.8	4.1	2.4	5.3	2.6	3.2	2.1
Fear	5.2	3.0	5.5	2.3	6.1	2.9	6.7	8.2
Avoidance	4.3	2.2	4.4	2.4	4.7	1.9	4.6	2.3
Dependence	5.2	1.8	3.8	1.5	5.0	1.9	4.8	1.7
Predetermination	3.3	2.4	4.5	2.6	4.0	2.2	3.0	1.1
Low effort	4.1	1.5	4.5	1.8	4.7	2.1	3.7	1.9

4.4.4 Career beliefs

Attitudes and beliefs about career and job-related matters were considered.

Table 11 presents the mean scores and standard deviations for the four groups for the subscales of the Career Beliefs Inventory.

Table 11.

The mean scores and standard deviations for the subscales of the Career Beliefs Inventory for each of the four groups.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
<i>Current career situation</i>								
Employment status	37.2	14.6	38.5	15.8	36.7	14.6	34.3	14.6
Career plans	21.2	8.1	27.1	12.0	25.6	8.1	27.7	10.5
Uncertainty accept	27.5	8.0	27.1	10.9	27.2	6.7	27.3	9.4
Openness	39.7	3.9	40.0	7.1	39.3	3.8	39.9	4.1
<i>Necessary for happiness</i>								
Achievement	37.5	6.0	37.6	6.9	35.6	6.8	37.3	7.8
Tertiary-education	33.7	8.3	34.4	7.7	35.6	7.3	29.7	6.9
Intrinsic satisfact'n	38.5	7.0	36.0	4.6	38.3	4.1	36.9	4.3
Peer equality	25.2	6.2	23.5	7.3	29.0	8.3	26.5	6.9
Structured wk env.	32.2	9.1	33.2	6.8	30.6	9.2	31.0	8.3
<i>Factors influencing decisions</i>								
Control	29.1	8.2	29.7	9.1	28.3	4.3	33.3	5.2
Responsibility	33.1	5.6	32.6	8.2	32.7	5.8	31.1	4.0
Approval of others	30.3	8.3	27.9	8.5	26.1	8.9	27.7	7.8
Self-other compare	39.2	6.1	35.8	8.7	33.6	8.8	35.5	3.8
Job/educ variation	37.2	7.1	40.0	4.4	39.3	4.0	38.7	4.7
Career path flexib.	32.3	7.2	32.4	6.3	30.1	8.1	33.3	4.8
<i>Changes willing to be made</i>								
Post-training trans.	34.0	5.7	37.5	5.1	36.2	4.3	35.1	5.2
Job experimentat'n	33.9	4.4	38.5	12.1	33.8	4.5	35.3	3.9
Relocation	27.7	9.8	30.9	12.5	28.7	7.9	32.0	6.6
<i>Effort willing to initiate</i>								
Improving self	30.6	7.3	33.8	8.9	36.7	8.7	31.3	7.4
Persist/uncertain	40.2	5.6	39.6	4.4	36.2	5.6	39.7	4.9
Taking risks	37.6	7.5	40.1	6.7	35.2	4.9	38.4	6.1
Learning job skills	37.8	7.1	35.9	5.4	36.1	6.5	38.3	5.9
Overcome obstacle	39.6	5.0	39.8	5.5	35.8	5.4	41.1	4.3
Working hard	31.4	3.7	32.6	5.0	34.6	6.2	33.8	5.6

When considering the current career situation, there were no significant differences between groups on these variables. In describing the current situation of the sample, all groups endorsed the items indicating that the majority were employed, that their career plans had already been decided and were not open to change and they felt that their career choices should have been made by this time. They also demonstrated a willingness to disclose their reasons for their specific career choices.

There were no significant differences between groups in the endorsement of factors that are deemed to be necessary for happiness at work. In describing the sample, the participants reported that they were highly motivated to achieve, believed that a tertiary education is a better route to a good job, that work must be satisfying, that they had a desire to excel others, and that they had a preference for standard work hours with supervision.

Between group differences were not apparent in relation to the endorsement of factors that influence career decisions. In summary, the participants were neutral in their opinion about whether a career path is self-determined or controlled by others, endorsed the view that a career choice is a personal one, tended to endorse the view that approval of others is important, but that they avoided comparisons with others. They also reported that there were differences among educational institutions and among workers within an occupation, and they indicated a tendency to believe that there are several routes that can lead to goal attainment.

When considering the changes that participants would be willing to make in relation to their career, there were no significant differences between groups. As a

whole, the sample were of the view that a job may differ from initial training and that they had a willingness to try alternative occupations. However, there was a more variable response to the view that they would be willing to move for a better job.

Finally, when considering the effort that the participants would be willing to initiate in relation to their careers, the participants reported that they have a desire to improve their performance, that they always work hard despite uncertainty, that it is better to try hard despite possible failure, that they enjoy learning new job skills, that obstacles can be overcome, and that hard work brings success.

4.5 Discussion

Comparisons were made between groups in relation to demographic variables. It was evident that there were more males than expected in the Assistance group and that this was the only group where the ratio of males to females was in favour of the males. It would appear that this result is out of keeping with what is known about the help seeking behaviour of men and women. It has been reported that women are much more likely than men to seek psychological treatment for stress related conditions (Rhodes, Goering, To & Williams, 2002), and have a more positive attitude towards help seeking in general (Leong & Zachar, 1999). In addition, an increased likelihood of women seeking help has been demonstrated for victims of crime (Kaukinen, 2002), and for seeking medical assistance for physical illness (Banks, 2001).

It is interesting to note that the reasons for help seeking may be different for men and women. For example, when considering alcohol related problems, men were more likely to endorse help seeking for problems related to alcohol use whereas women were more likely to seek help for the emotional problems that occur concomitantly. Further, men were reported to be most concerned about being labelled as having a psychiatric condition as a result of help seeking whereas women were more concerned about being labelled as being a problem drinker (Allen et al., 1998).

It has been suggested that help-seeking in general is problematic for men when the social costs are high (Lee, 2002). That is, if the likelihood is high that the individual will be perceived as incompetent, dependent or inferior, then help-seeking behaviours are avoided. Lee (2002) demonstrated this by determining that help-seeking with regard to a work-related computer task was low when the individual was male, working in a male dominated occupation, and when the task was perceived to be fundamental to the organisation's core competence.

However, the threat to self-worth may be reduced when help-seeking can be done anonymously (Sharma & Aradhana, 2000), such as is the case with some employee assistance programmes (Foster, Hirsch & Zaske, 1991). The lack of anonymity that occurs when supervisor referral to employee assistance programmes is required has been identified as potentially problematic and may account for low rates of use of these services (Dollard et al., 1999). However, factors such as perceived supervisor support and the sex of the supervisor may play a role in the

decision to seek help and the nature of help sought, particularly in relation to non-work related problems (Hopkins, 2002).

Sex differences in seeking help for work-related stressors have also been reported. Women were more likely than men to seek mental health or health service assistance following general workplace harassment although no sex difference in help-seeking following sexual harassment was reported (Rospenda, 2002). It was noted in that study that the sexually harassed males who did seek assistance also were more likely to have problems with alcohol misuse suggesting that problems have to be severe for men to seek assistance.

There is indirect support for this view. Seeking psychological help was demonstrated to be less likely when the individual is male, when the perception is that help seeking will result in stigmatisation, when strong emotional responses caused discomfort, and when the level of psychological distress was lower (Komiya, Good & Sherrod, 2000). It would appear that should distress exceed a critical point, then other factors inhibiting help seeking would be overridden. It may be the case in the current sample that the degree of distress engendered by the experience of workplace stressors demanded that the normal constraints on help seeking be overridden in the male members of the Assistance group. However, it also may be that seeking psychological assistance for work related stress conditions is a better alternative for males than lodging a workers' compensation claim.

The Compensation and Assistance groups were older than the other two groups. Although this may be a reflection of sample selection procedures influencing group composition, it may also represent a real difference. It is evident

that compared with younger people, older adults reported greater levels of acute stress when exposed to performance related stressors although the younger people were more stressed by stressors defined as relating to the actions of others (Goyen & Anshel, 1998).

Some research indicates that age differences are not apparent in the development of work-related stress conditions (e.g., Deosthalee, 2000). Other research has suggested that there are age differences with older workers making lower estimates of their skills and abilities to deal with work demands than younger workers (Kaliterna, Larsen & Brkljacic, 2002). There also is evidence that the negative effects of the pressures between work and family become greater in middle aged employees (Grzywacz, Almeida & McDonald, 2002). It is probably the case that for some individuals, increasing age is associated with reduced ability to cope with demands, whereas for others, ability to maintain good functioning continues despite increasing age (Hansson, Robson & Limas, 2001). The most important point of the results pertaining to the demographic profile of this sample is that there is nothing about these results that would explain why some people opt to lodge a workers' compensation claim whereas others do not.

When considering work-related information, the Compensation and Assistance groups had been in employment longer which was in keeping with the age differences of the groups. The association between years on the job or in employment and greater risk of the development of occupational stress has not received much attention in the literature although it has been reported that custodial officers who had been in their jobs the longest, had the highest level of

psychological strain (Dollard, Forgan & Winefield, 1998). However, the opposite has been reported. Among nurses, it was determined that more years on the job was associated with more emotional competency to deal with work-related issues leading to less self-doubt (Humpel & Caputi, 2001). Nevertheless, it could be argued that greater experience with work would increase the likelihood of exposure to a greater number of workplace stressors and the association between more time on the job and the development of strain can be understood within the context of the negative effects of the accumulation of stress experiences (Dollard et al., 1998).

Level of the responsibility at work was not different between groups. Although degree of responsibility for others has been associated with better job satisfaction, more responsibility also has been related to more psychological symptomatology (Goldenhar, Swanson, Hurrell, Ruder & Deddens, 1998). It may be that level of responsibility has different effects for males and females. Women in high ranking positions were determined to be the most negatively influenced by the demands placed on them, most probably because of additional home-related demands that were not evident for men (Lundberg & Frankenhaeuser, 1999). However, this study did not compare the responses of the high ranking professionals with people from lower occupational rankings so it is difficult to determine if the effect is a result of the level of responsibility associated with the positions of the participants.

From the results of the current study, there was no indication from these variables as to why some people who were stressed at work opted to lodge a workers' compensation claim whereas others did not. Only the Assistance group

was more likely to have experienced work stress in a previous position. It is clear from the trauma literature that retraumatisation can occur in individuals who previously have been traumatised as has been demonstrated in association with both war-related (e.g., Toren, Wolmer, Weizman, Magal-Vardi & Laor, 2002) and civilian-related traumatic events (e.g., Back, Dansky, Carroll, Foa & Brady, 2001; Glodich, 1998; Lauterbach & Vrana, 2001). It could be postulated that a previous work-related stress reaction to a workplace stressor would be more likely to leave an individual vulnerable to the effects of subsequent stressors if the previous event was not adequately resolved. It also could be postulated that adequate resolution would only be possible if both the individual and the organisation made changes to rectify problematic situations. The absence of a workers' compensation claim may reduce the likelihood of the organisation changing to prevent subsequent similar incidents if not obliged to by a request from the employee or by virtue of the workers' compensation legislation. This may account for why only the Assistance group had previously reported a work-related stress reaction.

The Compensation group was more likely to report an acute onset of work stress whereas the Assistance group was more likely to report an insidious onset. It may be that it is more straightforward to lodge a workers' compensation claim when there is an identified and recognisable stressor. This has been recognised by others (e.g., Dollard et al., 1999; Haines et al., 1996; Larsen, 1995). It has been demonstrated that the organisational response to acute onset, identifiable work stressors is more effective than the response to cumulative or chronic work stressors (Dollard et al., 1999). However, acute onset still only accounted for just over one

quarter of the Compensation group so it does not reflect even the majority of compensation cases.

It has been suggested that cumulative lower grade stressors most commonly result in psychological injury at work rather than single events (e.g., Haines et al., 1996). Further, it has been suggested that cumulative incidences of fatigue as a result of a range of psychosocial work characteristics result in psychological distress (Buelmann, Kant, Van den Brandt & Kasl, 2002). The cumulative exposure to high strain aspects of the job was demonstrated to result in elevated systolic blood pressure at work (Laflamme et al., 1998) and the development of psychological distress (Bourbonnais, Comeau & Vezina, 1999).

It may be that exposure to certain aspects of work that are difficult will increase the likelihood of an adverse effect. For example, a 43% increase in mortality was established, when a 10 year time lag is assumed, for people who were chronically exposed to low-control jobs (Amick et al., 2002).

It is interesting to note that a cumulative effect can also operate in the case of critical or acute events. This has been demonstrated in the case of police officers who developed symptoms of psychological distress following serial exposure to critical events (Neylan et al., 2002).

When comparisons were made between the Compensation and Assistance groups, it was evident that there was a tendency for the Compensation group to seek help at work sooner than the Assistance group. It may be speculated that the Compensation group came from a work environment that was more accepting of the workers' compensation process and willing to accept that lodging a workers'

compensation claim was a legitimate strategy for coping with stressful experiences at work. The Compensation group also sought help from a professional within a shorter period of time. This cannot be accounted for solely by the acute nature of the onset of the stress reaction. However, it should be noted that there was much variability in seeking help from both employers and professionals.

The general medical or family practitioner was the primary source of assistance with work stress reactions. It was interesting to note from a study examining the presentation of problems to general practitioners and the factors that influenced the reporting of these problems, that occupational stress was the most commonly reported psychosocial problem, being reported by 59% of 1,400 patients (Gulbrandsen, Fugelli & Hjortdahl, 1998).

Sick leave was used as a means of coping with the stress reactions that developed as a consequence of exposure to work stressors. Sick leave was used more often than other types of leave such as annual/recreation leave. This has been reported elsewhere. It was evident that individuals who had lodged a workers' compensation claim for a psychological injury had twice the number of days sick leave as the organisational average in the year prior to the claim being lodged (Dollard, et al., 1999). Public sector claimants were determined to be four times as likely to use sick leave as nonclaimants (Toohey, 1995). However, the results from the current study indicated that it was not only the Compensation group who had over used sick leave but also the Assistance group. Interestingly, it would appear from the current study that the tendency to use sick leave to cope with stress

Polatajko & Harburn, 2002). The subjective view of the return to work potential or suitable return to work arrangements may be determined by the nature of the workplace stressor experienced by the individual and the organisational response to time away from work. It was evident from examination of the literature (see Friesen, Yassi & Cooper, 2001) that a range of factors can facilitate or impede return to work after physical injury such as delays in initiating treatment or processing and delivering information, and problems with poor communications between stakeholders in the return to work process.

There were no differences between groups of the resources needed to meet life challenges. Further, all scores were within the normal range. It is worth noting that relative to the coverage of coping strategies in relation to work stress, with a few exceptions (e.g., Pithers & Soden, 1998), there is little published research about the influence of coping resources. Clerical workers were determined to have fewer coping resources and more psychological distress than managers (Long, 1998). Others have found that coping resources did not influence the relationship between personality type and burnout (Reid, 1999).

It may be that despite adequate coping resources, the experience of work-related stressors exceeds the normal coping resources of the individual. There is indirect support for this. For example, it was suggested that college and high school teachers needed to learn coping strategies to effectively overcome the negative influences of exposure to workplace stressors (Upadhayay & Singh, 2001), suggested that the existing means of coping were insufficient to deal with the additional demands.

reactions is a generalised response of people who have experienced significant symptomatology as a consequence of stress at work.

The outcome of the workers' compensation process was examined for the Compensation group. There were no unsuccessful claims for workers' compensation. An examination of 654 workers' compensation claims for stress reactions in the Tasmanian public sector indicated that, although approximately two-thirds of all claims were disputed, more than 90% ultimately were accepted, most without the necessity of referral to a tribunal (Haines et al., 1996).

Almost three-quarters of the Compensation group reported being involved in a rehabilitation programme aimed at returning the workers to work. Of those cases where the outcome was known, few returned full time to the same position and few never returned to work.

There are reported return to work rehabilitation programmes for physically injured employees that are based on graded return to work principles (Durand & Loisel, 2001) and concepts of work hardening (Weigmann & Berven, 1998). Indeed, in an effort to reduce time away from work, modified return to work options have been reported to be more commonly implemented than non-modified, full-time return to work (Krause, Dasinger & Neuhauser, 1998). These principles and concepts seem to be able to be directly applied to return to work following psychological injury.

Research evidence has suggested that subjective perceptions of both personal and environmental factors impact on return to work behaviours following physical injury or illness (e.g., Gibson & Strong, 1998; Kenny, 1998; Shaw, Segal,

However, if psychological resources such as individual coping skills have been shown to operate by altering the perceptions of workplace stressors (e.g., Dobrevá-Martinova, Villeneuve, Strickland & Matheson, 2002), then it would appear that all four groups in the current study would have been influenced in similar ways because of the similarity of the coping resources reported by the groups. Further, individual differences in preferred coping style in response to intensely stressful situations (e.g., Moran, 1998) may mean that existing coping resources would be insufficient to deal with the additional demands of a workplace stressor when the implementation of skills associated with the preferred coping style may be effective for some but not for others, depending on the nature of the coping style. So coping resources themselves would not predict the ability to adequately deal with specific workplace stressors.

There were no differences between groups in terms of dysfunctional attitudes. This is despite the fact that dysfunctional attitudes have been demonstrated to be relevant in the aetiology of high levels of occupational stress although not low levels (Goh & Oei, 1999). However, if the experience of a workplace stressor is defined as a negative life event, then others have found that dysfunctional attitudes did not influence the relationship between the stressful life event and the development of psychological symptoms (e.g., Schoeder, 2002). Further, it was reported that factors related to the work context were more important than dispositional factors in increasing the risk of the development of psychological strain among correctional officers (Dollard et al., 1998).

It has been suggested that people who score highly on measures of dysfunctional attitudes are individuals who are unreliable, irresponsible, immature and poorly integrated (Richter & Eisemann, 2002). However, the lack of difference between groups in the current study and the clinical insignificance of the scores would indicate that it is not these factors that are predisposing people to the experience of stressful reactions following exposure to a workplace stressor.

Of course, the relationship between dysfunctional attitudes and psychological distress at work may be more complex than a straightforward association would suggest. For example, one study found that job self-efficacy, or the belief that one is able to meet the demands of the job, influences the relationship between perceived organisational politics and specific dysfunctional attitudes (Bozeman, Perrewé, Hochwarter & Brymer, 2001). This suggests that holding dysfunctional attitudes may be problematic in relation to specific workplace stressors but not all workplace stressors and that other personal variables may impact upon the relationships.

There were no differences between groups in irrational beliefs and no markedly elevated scores although there was a mild elevation for fear of the future for all groups. This result is interesting given the literature relating to factors such as alienation that might be evident in the workplace and irrationality (e.g., Mahoney, 1999), and specific irrational beliefs and poorer work satisfaction (Wittenberg & Norcross, 2001). So, whereas dysfunctional attitudes and irrational beliefs have been related to elevated scores on depression and anxiety scales (e.g., Abela & D'Alessandro, 2002; Chang & D'Zurilla, 1996; Furlong & Oei, 2002; Lamontagne, Boyer, Hetu & Lacerte-Lamontagne, 2000; Zuroff, Igreja &

Mongrain, 1990), there may be no direct relationship between these variables and the work stress experience or compensation seeking.

Finally, there were no differences between the four groups in the current study in their beliefs about their careers. It is interesting that relatively little is known about the influence of expectations about careers and jobs on the development of occupational stress. It has been demonstrated that holding certain beliefs is associated with more satisfactory employment following graduation (Nurmi, Salmela-Aro & Koivisto, 2002), that career beliefs seem to be unrelated to involvement in career education courses (Peng & Herr, 1999), and that certain career beliefs are associated with career maturity (Schnorr & Ware, 2001). However, the role of specific career beliefs in the development of work-related stress conditions or the influence of specific career beliefs on the decision to lodge a workers' compensation claim have not been considered in the literature. Of course, the results from the current study that career beliefs may influence the decision to pursue one career or another, do not have an influence on the development of psychological injury at work.

In summary, the results of this study did not identify any personal variable as being particularly influential in the development of occupational stress in this group. In addition, there was no evidence that any of the personal variables examined increased the likelihood that a workers' compensation claim for psychological injury would be lodged.

CHAPTER 5

ENVIRONMENTAL CONTRIBUTORS TO WORK STRESS

5.1 Introduction

It is evident from Berry's model that the development of occupational stress can be influenced by environmental factors both inside and outside of the workplace. The present study aims to investigate these types of influences on the development of occupational stress responses. It has been demonstrated that environmental contributors outside the workplace can have a significant impact on the way an individual will cope with workplace stressors (e.g., Frone et al., 1992a), as can the nature of the environment within the workplace (e.g., Dua, 1996; Schonfeld, 1996; Turnipseed & Murkison, 2000). It also has been demonstrated that the conflict between the demands of work and non-work roles can exacerbate occupational stress reactions (e.g., Burke, 1993a, 1994). In addition, it has been well established that stress responses can develop as a consequence of major stressors (e.g., Holmes & Rahe, 1967; Sherman & Thelen, 1998) or can result from the accumulation of daily irritants (e.g., Zohar, 1997, 1999).

5.1.1 Major stressors outside of work

Interest in life events increased with the work of Holmes and Rahe (1967) who related the experience of life events to physical illness. Research has continued to demonstrate the association between life stress and adverse effects on health (e.g., Aldwin, Levenson, Spiro & Bosse, 1989; DeLongis, Folkman & Lazarus, 1988; Kanner Coyne, Schaefer & Lazarus, 1981), although it has been argued that the association is not as strong as once thought (e.g., Rabkin & Struening, 1976) due to the potentially mediating and moderating effects of a range of variables.

Nevertheless, it has been proposed that life events bring about the need for adjustment in individuals which then increases the risk of physical illness. Researchers took up the challenge of designing life event stress measures to be applied to stress research (e.g., Dohrenwend & Dohrenwend, 1978; Holmes & Masuda, 1974; Sarason, Johnson & Siegel, 1978).

However, the degree of emphasis on life events in the stress literature has been criticised (Kanner et al., 1981). Statistically, the relationship between life events and physical outcomes has been weak (e.g., Rabkin & Struening, 1976). Further, the examination of the relationship between life events and the development of negative outcomes does not add to the knowledge of the process of the development of physical illness (e.g., Kanner et al., 1981).

In addition, there have been criticisms of life events measures. For example, it has been argued that life event measures are unable to adequately account for individual differences in current life experience and do not measure an individual's interpretation of their experiences (Shalowitz, Berry, Rasinski & Dannhausen-Brun, 1998), factors which clearly are important.

Despite the apparent limitations, a number of investigations in the area of occupational stress have considered the impact of life events (e.g., Abouserie, 1996; Arvay & Uhlemann, 1996; Benishek & Lopez, 1997; Cassidy & Burnside, 1996; Constantini, Solano, Di Napoli & Bosco, 1997; Lin & Lai, 1995; Loewenthal et al., 2000; Sahu & Misra, 1995; Whitehead & Ryba, 1995).

Sherman and Thelen (1998) examined distress and professional impairment among psychologists in clinical practice and were able to demonstrate that a greater

frequency of life events, along with other work-related factors, was associated with greater distress and impairment. A strong association between life stress and the development of burnout symptoms, particularly for women, was indicated from an examination of medical practitioner groups (Pradhan & Misra, 1995).

Therefore, despite the obvious limitations with the conceptualisation and measurement of life events and life stress, there is sufficient evidence to suggest that these factors can impact on the way in which an individual functions at work. More importantly for the purposes of this study, life event stress is considered important in the workers' compensation process as the claimant must demonstrate that, if other life stressors have been experienced, they do not predominantly account for the development of the stress response at work (<http://www.thelaw.tas.gov.au>).

5.1.2 Minor life stressors

In contrast to investigations concerned with major life events, it has been recognised that individuals experience stress on a day to day basis. The investigation of the influences of minor life events developed as a consequence of the determination that the relationship between life event stress and psychological and physical outcomes was relatively weak (Johnson & Bornstein, 1993). Kanner et al. (1981) speculated that minor life events would be more strongly related to health concerns than would major life events. Minor stressors or daily hassles have been defined as "irritating, frustrating, distressing demands that to some degree characterise everyday transactions with the environment (Kanner et al., 1981, p.3).

Each transaction involves a degree of stress, and the cumulative nature of this stress can lead to negative health effects (McLean, 1976).

A study that considered both life events and daily stressors was conducted by Carr and colleagues (1996). Participants were identified as experiencing either high or low levels of stress and compared on a number of measures. Results demonstrated significant differences between groups. The high stress group reported more somatic anxiety, social problems and burnout. The high stress group also were younger and reported experiencing more life events and daily stressors that, in turn, predicted poorer general health. Other research has demonstrated minor hassles to be more strongly related to health outcomes than major life events (e.g., Aldwin et al., 1989; Compas, Howell, Phares, Williams & Giunta, 1989; DeLongis et al., 1982; Monroe, 1983).

A number of ways in which daily hassles may contribute to the stress process have been proposed. Firstly, it has been speculated that the timing of the occurrence of hassles or the combination of a number of hassles may determine the health impact (Kanner et al., 1981). Secondly, major life events may lead to disruption in social relationships, habits and patterns of activity that could, in turn, affect the person's perception of their experience of daily hassles (Hinkle, 1974). Others have suggested that daily hassles may serve as 'critical event mediators' of life events (e.g., Kaplan, 1979). Thirdly, it has been suggested that hassles are related to a person's characteristic lifestyle, or environment, or interaction of the two (Kanner et al., 1981).

With the suggestion that personal interpretation of events is an important factor, it has been speculated that, in times of stress, a person's perception of what is a hassle may change. Events previously seen as benign, are subsequently experienced as more stressful (Kanner et al., 1981). In terms of the experience of occupational stress, it would be expected that highly stressed individuals would experience more hassle stress because they would cope less well with the events they experienced.

Criticisms have been made of the interpretation of the way in which the experience of daily hassles affects functioning. It has been postulated that there is a confounding influence in self-report measures of both major life events and daily hassles of psychological and physical symptoms (Dohrenwend, Dohrenwend, Dodson & Shrout, 1984). That is, substantial overlap of items on life event and daily hassles measures with symptom measures makes it difficult to determine cause and effect relationships. Dohrenwend et al. (1984) argued that if life event and daily hassles measures simply are a reflection of current psychopathology, then they have no role in being used to predict subsequent symptomatology. It was evident that this argument had merit given that measures of major life events and daily hassles were demonstrated to be unable to predict psychopathology when account was made of previous symptom levels (e.g., Grant, Patterson, Olshen & Yager, 1987; Johnson & Bornstein, 1991).

Nevertheless, there is a substantial body of literature that demonstrates that daily hassles are significant predictors of stress symptoms (Kanner et al., 1981; Kohn, Lafreniere & Gurevich, 1990; Lazarus, 1990; Stone & Neale, 1982; Zohar,

1997). However, despite evidence that indicates that an accumulation of more minor stressful events at work more commonly resulted in a workers' compensation claim for psychological injury than did single, acute stressors (e.g., Haines et al., 1996), the examination of the influence of daily hassles on the development of occupational stress reactions has not strongly featured in the occupational stress literature (Zohar, 1999).

Some studies have reported a link between the experience of daily hassles and the development of negative psychological and physical outcomes. For example, Zohar (1999) studied military parachute trainers and found that hassles severity predicted end-of-day mood, fatigue and subjective workload. Other studies have indicated that the relationship between daily hassles and negative outcomes can be influenced by a range of other factors. For example, daily hassles, combined with poor support systems, increased the likelihood of burnout symptoms in local Japanese government officials (Nadaoka, Kashiwakura, Oiji, Morioka & Totsuka, 1997). Fry (1995) recognised the contribution of daily hassles to self-esteem, burnout and physical ill health. From a sample of executive women, it was evident that daily hassles were detrimental in relation to these outcome measures but that the effects were moderated by personality factors, including perfectionism, humour and optimism.

Hassles present a disruption to planned activities. For example, in the workplace this may include equipment difficulties, unscheduled changes of task assignments, information difficulties or inappropriate behaviour of co-workers (Zohar, 1999). A number of theories have proposed explanations for the effect

hassles have on pursuing goals and health. For example, action theory considers that interference of goal behaviour causes a necessary change in behaviour and results in an expenditure of extra energy (Frese & Zapf, 1994). Similarly, the behaviour economics model considers the effect of energy expenditure and division of available resources between task and hassle (e.g., Schonpflug, 1983). This may, in turn, contribute to the development of fatigue and negative mood. The relationship between the experience of daily hassles, effort expenditure and the development of negative psychological and physical symptoms has been demonstrated from research examining a range of occupational groups (e.g., Koch, Tung, Gmelch & Swent, 1982; Motowidlo, Packard & Manning, 1986; Zohar, 1997).

In summary, there is evidence that the experience of minor stressors in daily lives can influence the experience of occupational stress. As mentioned, the fact that compensation claims for psychological injury more commonly result from an accumulation of stressful events than from a single, major work-related stressor (e.g., Haines et al., 1996), indicates that the impact of daily hassles on the working individual can be quite severe.

5.1.3 Work-nonwork conflict

Further evidence for the impact of non-work events on the development of occupational stress comes from the literature relating to conflicts between work and non-work roles and activities. It is evident that researchers take account of the fact that workers exist outside of their work environments. Both work and non-work roles, therefore, are significant in an individual's life (Frone & Rice, 1987).

However, the two do not exist in isolation, but interact. These interactions can cause conflict. Work-nonwork conflict or work-family conflict is recognised as a predictor variable for negative outcomes at work.

Most investigations have measured these conflicts using questionnaire items specifically directed at the examination of the effect of work on family (e.g., Behson, 2002; Bruck, Allen & Spector, 2002; Noor, 2002). However, the conflict is bi-directional (Burke & Greenglass, 2001a, 2001b; Eagle, Miles & Icenogle, 1997; Frone et al., 1992a, 1992b). Work-family conflict refers to the degree to which work interferes with family life, and family-work conflict refers to the degree to which family interferes with work (Greenhaus & Beutell, 1985).

Work-family conflict and family-work conflict have been demonstrated to be separate constructs (Frone et al., 1992a, 1992b) although both these types of conflicts have been identified as stressful and as having a negative effect on the psychological well-being of workers (Burke, 1988; Frone et al., 1992b). There is research evidence to suggest that work interferes with family more frequently than family interferes with work (Frone et al., 1992a) suggesting that family boundaries are more vulnerable to the influences of work demands than the reverse.

Work-family conflict has been demonstrated to lead to specific psychological outcomes. For example, a random community sample of employed parents demonstrated work-family conflict, in the long term, was related to heavy alcohol consumption, and family-work conflict was longitudinally related to greater depression and poorer physical health including hypertension (Frone, Russell & Cooper, 1997). Further, the experience of work-family conflict has led to

psychological burnout (Bacharach, Bamberger & Conley, 1991), particularly emotional exhaustion and depersonalisation (Burke, 1993a), job and family dissatisfaction and depression (Barich, 1995), along with negative effects on emotional and physical wellbeing (Burke, 1994). In a separate study of police officers, work-family conflict was generally only related to lack of emotional wellbeing (Burke, 1993b) which may be due to the uni-directional measure used. The examination of work-family conflict generally has been conducted using surveys or standardised psychometric questionnaires (e.g., Burke, 1993a, 1993b, 1994; Burke & Greenglass, 2001a, 2001b). Items generally refer to either work-family or family-work conflict, although not all questionnaires include both types of items.

Burke and Greenglass (2001b) were concerned with the effect of work-family conflict as well as family-work conflict among nursing staff during a period of restructuring. Work-family conflict and family-work conflict were positively and significantly correlated. Work-family conflict was significantly and negatively related to job satisfaction. Greater work-family conflict also lead to more psychosomatic symptoms. Similarly, nursing staff reporting high family-work conflict and lower job satisfaction also reported more psychosomatic symptoms (Burke & Greenglass, 2001b).

Studies have been conducted examining the influences of these types of conflict on single sex samples. For example, a study of women managers in Norway demonstrated work-family pressures were related to poor health and life dissatisfaction (Richardsen, Burke & Mikkelsen, 1999). Further, a study of air force women demonstrated the main contributors to depression were job and family stress

and it was reported that work-family conflict and family-work conflict had a bi-directional influence on each other (Vinokur, Pierce & Buck, 1999).

Results of studies that have included both sexes have demonstrated differences. For example, a study that assessed work-family conflict in more detail, measuring job-parent and job-spouse conflict, was conducted in Singapore with dual-earner couples. In contrast to the husband participants, wives reported more burnout that was a reflection of a combination of work and nonwork stressors. For husbands, it was only work stress that influenced burnout and not nonwork stressors. Also, for the female participants, the quality of the spousal relationship impacted on the relationship between job-spouse conflict and burnout symptoms (Aryee, 1993).

Further, a study of male and female lawyers considered time- and strain-based work to non-work family conflict. It was only work overload that similarly influenced work-nonwork conflict in both men and women, although the number of hours worked did not influence the perception of work-nonwork conflict. Females experienced greater work-nonwork conflict when working in a law firm. More hours at work, working with a greater number of female colleagues, and being married to a woman who was the main family breadwinner were associated with time-based but not strain-based conflict among male lawyers. Interestingly, domestic roles and additional family roles did not add to the burden of women suggesting that females cope better than males with the conflicts between family and career (Wallace, 1999).

In summary, the important point of this research is that nonwork related factors can impact on the way in which a person experiences stress at work. In particular, there is evidence that the experience of events and demands outside of work can exacerbate stress reactions in the workplace.

5.1.4 Work environment

Characteristics of the work environment contribute to an individual's experience of the workplace. The term 'work environment' incorporates a broad range of factors. Much research in the area of occupational stress has considered aspects of the work environment in the development of work-related stress reactions. However, variations exist among investigations as to how the aspects of the work environment are measured. Further, there is overlap between factors identified as aspects of the work environment and the definitions ascribed to them. In addition, factors in a complex model of occupational stress, such as social support, can be considered to be a work environment factor or a coping resource. Lack of support at work can be considered as a work environment issue or a factor associated with the experience of a specific stressful event. Within these limitations, work environment factors that contribute to occupational stress reactions will be considered.

Studies concerned with the examination of occupational stress have considered characteristics of the work environment that are helpful and should be encouraged (e.g., Gillespie et al., 2001; Melchior, van den Berg, Halfens & Abu Saad, 1997; Meleis, Messias, & Arruda, 1996; Turnipseed & Murkison, 2000), and characteristics that may be harmful, and should be reduced (e.g., Barber & Iwai,

1996; Belicki & Woolcott, 1996; Dua, 1996; Fejgin, Ephraty & Ben Sira, 1995; Nettersrom & Hansen, 2000; Pottage & Huxley, 1996; Reynolds, 1997; Schonfeld, 1996, 2001; Torp, Riise & Moen, 1999).

When considering the helpful aspects of work environment, a number of studies have been able to demonstrate that certain aspects of the environment enhance successful functioning. For example, Schulz, Greenley and Brown (1995) investigated community health organisations. It was evident that a range of work environment variables were influential in relation to job satisfaction and burnout, namely, the structure of the organisation, the culture within the organisation, and management practises. Group cohesion, a team-based structure, and good quality leadership were associated with a better work environment. Similarly, others have found that in a group of nursing workers, work environments characterised by high levels of support, adequate feedback, good job clarity, high levels of autonomy, and non-complex work practises were associated with less evidence of burnout (Melchior et al., 1997). Further, it was not the individual work experience of the nurses that was important in determining burnout in this group, but the collective work experience.

Participants involved in an investigation of women's work environments identified a range of factors that contributed to a healthy and unhealthy work environment. Specifically, good work environments were characterised by factors such as challenge, safety, participation, pleasant surroundings, feeling valued, role clarity and feelings of empowerment. Poor work environments were noteworthy for

a high level of work hazard, more influence from bureaucracy, feelings of devaluation, and negative economic influences (Meleis, et al., 1996).

Other factors have been associated with work environments that do not promote adequate functioning. For example, studies of physicians have identified factors in their work environments leading to stress. Internal professional stress (e.g., dissatisfaction with professional life), perceived work productivity (e.g., work and professional expectations), interference with family life, and external professional stress (e.g., perception of support from others) all were associated with poor work environments (Revicki & May, 1983). Tolhurst, Ireland and Dickinson (1990) demonstrated challenges experienced by general practitioners including inappropriate training for varied roles, insecurity about treating patients suffering from a variety of illness, being on call, having their sleep disturbed, and coping with illness without appropriate facilities.

Dua (1996), in an investigation of general medical practitioners in New South Wales, identified nine major occupational stressors. These included workload, family and leisure considerations, bureaucratic interference, education and training considerations, professional isolation, social treatment by patients and professionals, available professional support for rural practitioners, consequences of professional decisions, and negative perceptions of general practitioners' work. It is evident that some of these stressors, such as professional isolation, availability of support and bureaucratic interference, provide an insight into the work environments for these participants. Poor work environment factors were demonstrated to be evident for other high stress occupational groups. For example, low involvement, autonomy,

support, innovation and task orientation were reported by a group of correctional officers with the most stressed members of this group also reporting the highest levels of work pressure (Dollard et al., 1998).

The demands-control model developed to describe the process of occupational stress has guided research into the work environment and its influence on work stress (e.g., Demerouti et al., 2001; Kompier & Di Martino, 1995; Schaubroeck, Jones & Xie, 2001). Control has been identified as enhancing a healthy work environment. For example, a study of non-academic staff in a university identified the moderating effect of control on the experience of the work environment. Politics were identified as a potential source of stress in the work environment (Ferris, Frink, Galang, Zhou & Howard, 1996). Schaubroeck and colleagues (2001) also found that the association between demands at work and poorer health was influenced by job control but only among individuals with high levels of self-efficacy and where perceived responsibility for negative events was low. Interestingly, in individuals with low levels of self-efficacy, high levels of control at work worsened the relationship between work demands and poor health.

Bourbonnais, Brisson, Moisan and Vezina (1996) demonstrated a relationship between job strain and psychological distress. This relationship was stronger for individuals who perceived that they had high psychological demand and low decision latitude. Similarly, other studies have demonstrated psychological symptoms developing as a consequence of high psychological demand and low decision latitude (e.g., Landbergis, 1988). Other researchers have demonstrated that

high psychological demand has an effect on distress and depression (Karasek, Gardell & Lindell, 1987) as has low decision latitude (Cox, 1985).

Researchers have recognised the importance of changing work environment factors to improve the quality of working lives of employees by reducing negative influences and enhancing positive influences. From a review by Kompier and Di Martino (1995), bus driving was identified as a stressful occupation that was associated with exposure to a work environment characterised by high demands, low control and low support. These authors recommended changes to the social working environment of bus drivers to overcome the negative influences of the work environment factors. Other authors concerned with recommendations for improving the work environment of nurses have suggested improving work climate with the development of supervisory skills to assist in this process (Pettersson, Arnetz, Arnetz & Hoerte, 1995). Physical work environment was considered less important than social work environment.

Physical comfort at work has been considered to be a work environment issue. Physical characteristics of the work environment have been identified as related to stress outcomes. Frequently studied stressors have included density and crowding as an example of overload (Keating, 1979; Rule & Nesdale, 1976; Suedfeld, 1979) and/or lack of privacy (Cohen, 1980). High noise levels (Rule & Nesdale, 1976) and vibration and/or soundwaves (Quick & Quick, 1984), temperature extremes (Cohen, 1980), air movement and background colour (Jokl, 1984) and illumination (Lindgren, Norbaeck, Andersson & Dammstroem, 2000) have been identified as sources of stress within the workplace.

Results have not consistently demonstrated negative influences of these types of factors. For example, Sutton and Rafaeli (1987) conducted a field study of clerical workers and their work stations. Dependent variables included intrusions from atmospheric conditions (hotness, coldness, poor quality lighting), and intrusions from other employees (noise and distractions, lack of control over privacy, high population density). Results indicated that work stations were not a source of occupational stress for these workers.

Workplace violence has been an issue of particular interest in the work environment. In a study of the influence of work climate and job factors as predictors of workplace violence, workplace climate variables such as low levels of co-worker support and poor work group harmony predicted threats, harassment, and fear of becoming a victim of violence (Cole, Grubb, Sauter, Swanson & Lawless, 1997).

Social support at work "refers to overall levels of helpful social interaction available on the job from both co-workers and supervisors" (Karasek & Theorell, 1990, p.69). Support has been identified as a significant factor in the work environment. Social support at work can affect an individual's health and behaviour (House, Landis & Umberson, 1988).

Social support having a negative influence, in turn, means that a lack of expected support can lead to adverse effects. An investigation of nurses identified that characteristics of the work environment, particularly conflict with supervisors along with work overload, were significantly related to the development of stress responses (Hillhouse & Adler, 1997). The same result of poor supervision and high

workload was reported in relation to the stress responses of social workers (Collings & Murray, 1996).

Further, Revicki and Gershon (1996), in their investigation of work environment characteristics, work-related stress and psychological distress, reported that stress at work developed as a function of low levels of support and poor supervision and resulted in elevated levels of psychological distress. The importance of creating a supportive work environment as a major factor in the promotion of health in the workplace was highlighted in a study of crisis intervention workers (Brown & O'Brien, 1998).

Some studies have demonstrated that support has a modifying effect on the association between job strain and psychological distress. For example, mental fatigue was reported to have increased by 131% from low strain to high strain jobs when support was high, but increased by 225% when support was low (Karasek & Theorell, 1990). Further, there was an increase in depressive symptoms from low demand to high demand positions that was significantly exacerbated when social support levels were low (Karasek & Theorell, 1990).

Other results have not shown this effect. For example, Bourbonnais and colleagues (1996) investigated job strain and psychological demand, decision latitude and psychological distress. Results showed that a high psychological demand and low decision latitude lead to the development of psychological distress. Social support was significantly associated with psychological distress but was not a modifier for the relationship between job strain and distress. It is evident that the results of some investigations of social support as a modifier between occupational

stressors and mental health outcomes have been unclear. Beehr, King and King (1990) acknowledged the lack of consistent evidence in some results of co-work or supervisor support modifying mental health outcomes. Ganster (1989) has suggested that social support acting as a moderator may be more relevant for life events outside of work.

It also should be noted that current approaches to improving the work environment as a means of alleviating occupational stress have been criticised. Reynolds (1997) suggested that a cause and effect relationship between aspects of the work environment and the development of psychological distress cannot yet be supported. Further, the ways in which change at work has been introduced have been inadequate. Therefore, in her opinion, psychological improvements would not have been expected.

In summary, there are a range of work environment factors that have been demonstrated to be associated with good psychological adjustment at work. In addition, the available literature has identified a number of work environment factors that may be detrimental to psychological functioning. The sometimes inconsistent results, the nature of the direct and indirect relationships between variables, and the potential overlap between work environment factors and specific stressful events at work (as will be discussed in the following chapter), highlight the complexity of the influence of the work environment on the development of occupational stress.

5.2 The current study

The present study aimed to investigate the association of environmental stressors, both work-related and nonwork, with the claim for workers' compensation. As it has been determined that major life stressors exacerbate the stress responses to work stressors, it would be expected that the Compensation group would experience the more severe life stressors, followed by the Assistance group, the Stressed group and then the No Stress group. Further, as it is evident that the accumulation of daily hassles and irritants would adversely impact on the ability to withstand job-related demands, it would be expected that the Compensation group would report the most frequent and the most severe daily hassles, followed by the Assistance group, then the Stressed group, then the No Stress group. Finally, as work environment factors have been implicated in the development of occupational stress responses, then it would be expected that the Compensation group would report the most adverse environmental conditions, followed by the Assistance group, then the Stressed group, and then the No Stress group.

5.3 Method

5.3.1 Participants

As for Study 1.

5.3.2 Materials

The questionnaires used in Study 2 are presented in Appendix E.

The Schedule of Recent Experience (Holmes & Rahe, 1967) was administered to measure stressful life events not associated with work which may have been experienced by participants that could influence an individual's overall stress level. The schedule is made up of two parts. Part A assessed experiences that occurred over the past 12 months, and Part B assessed experiences that occurred over the past 2 years. The schedule involved items from a broad range of life domains, including occupation, relationships, finance and social activity. Each item is weighted according to the severity of the event. The frequency of the events is also considered in the items in Part B. The schedule gives a single measure of experience. Scores over 200 indicate inappropriately high levels of stress.

As outlined, problems have been identified with these measures. For example, the weighting of items does not allow for the individual perception of the stressful nature of events (Rabkin & Struening). That is, one event can and does vary in degree of stressfulness between individual and their circumstances. Further, the range of areas measured has been criticised as being too narrow (Brett et al., 1990). However, in the absence of better, appropriate and easily administered alternatives, the above mentioned test was selected.

The Hassles Scale (Kanner et al., 1981) was developed to quantify daily stress experienced by participants. Items typically referred to irritants or hassles experienced daily. Subjects indicated the hassles they had experienced in the past month, and the frequency and severity of the experience. More frequently experienced stress items were accorded proportionally higher weights which would yield higher scores indicating a higher level of stress. The Hassles Scale has

typically been described as a valid and reliable measure of psychological stress (Holm & Holroyd, 1992; Johnson & Bornstein, 1993).

In particular, a shortened version of the Daily Hassles Scale (Holm & Holroyd, 1992) was administered. Items referred to common daily hassles to the broad daily life of the individual. Participants were asked to indicate the hassles they had experienced in the past month, and the frequency and severity of the experience. Separate scores were calculated for the number of hassles experienced, the frequency with which they occurred, and the severity of disruption they caused (Holm & Holroyd, 1992; Johnson & Bornstein, 1993). Although the original version of the Hassles Scale (Kanner et al., 1981) has been adequately psychometrically evaluated, less psychometric information is available about the shortened version other than reports that the test is a valid and reliable measure of daily hassles that is commonly used (Holm & Holroyd, 1992; Johnson & Bornstein, 1993).

The Work Environment Scale (WES; Moos, 1981) was used to assess the range of social environments of different work settings experienced by participants. The WES measures three dimensions of the social environment, the Relationships dimension, Personal Growth dimension and the System Maintenance and System Change dimension. Each dimension is comprised of a number of subscales. The Relationship dimension includes Involvement, Peer Cohesion, and Supervisor Support. The Personal Growth dimension includes Autonomy, Task Orientation and Work Pressure. The System Maintenance and System Change dimension includes Clarity, Control Innovation and Physical Comfort. Participants responded to each

item in the item booklet and entered their answers on a separate response sheet. Raw scores were transformed to standard scores. Standard scores relevant to general work settings were used for conversion.

The internal consistencies for each of the ten subscales range from 0.69 for Peer Cohesion to 0.86 for Innovation. These were considered to be in an acceptable range (Moos, 1981). Test-retest reliabilities range from 0.69 for Clarity to 0.83 for Involvement. Again, these were considered to be in the acceptable range (Moos, 1981).

5.3.3 Procedure

Questionnaires were completed as part of the initial questionnaire package provided to participants.

5.3.4 Design

A four group questionnaire study was used. The groups were Compensation, Assistance, Stressed and No Stress. The dependent variables were major life events, daily hassles, and work environment variables.

5.3.5 Data analysis

Analyses of variances were used to examine between group differences on the dependent variables. A significant criterion of .05 was adopted.

5.4 Results

ANOVA summary tables are presented in Appendix F.

5.4.1 General stressors

Table 12 presents the mean scores and standard deviations for the Schedule of Recent Experiences and the Daily Hassles Scale to determine the degree of exposure to general life stressors. There were no differences between groups in the exposure to life stressors as assessed by the Schedule of Recent Experiences or the number, frequency or severity of daily hassles.

Table 12.

The mean scores and standard deviations for the Daily Hassles Scale and the Schedule of Recent Experiences for participants from all four groups.

Scale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Schedule of Recent Exper.	388.3	157.0	301.5	177.8	435.2	386.8	323.6	141.7
Hassles number	11.1	6.7	11.9	6.0	19.0	13.0	11.8	4.9
Hassles severity	21.7	12.2	19.7	11.2	26.6	14.3	19.7	8.1
Hassles freq.	23.5	10.9	22.3	11.0	28.4	10.3	24.0	8.3

5.4.2 Work environment

A comparison was made between groups in terms of the nature of the work environment as measured by the WES. The mean scores and standard deviations for the four groups for the WES subscales are presented in Table 13.

When considering the Relationships dimensions, there was a significant between group difference for the Involvement subscale, $F(3,56) = 2.80, p < .05$. Post hoc analyses indicated that the Stressed group scored significantly higher on this subscale than the Compensation group (*Fisher LSD* = 14.24, $p < .05$) and the Assistance group (*Fisher LSD* = 13.95, $p < .05$). No other differences were apparent.

In addition, there was a significant result for the Peer Cohesion subscale, $F(3,56) = 3.04, p < .04$. In this case, the Assistance group scored significantly lower than the Stressed group (*Fisher LSD* = 17.15, $p < .05$) and the No Stress group (*Fisher LSD* = 14.20, $p < .05$). No other differences were evident.

Differences also were noted for the Staff Support subscale, $F(3,56) = 8.36, p < .0001$. It was evident that the Compensation group reported significantly less staff support than the Stressed group (*Fisher LSD* = 13.12, $p < .05$) and the No Stress group (*Fisher LSD* = 10.97, $p < .05$). Also, the Assistance group reported significantly less staff support than the Stressed group (*Fisher LSD* = 12.85, $p < .05$) and the No Stress group (*Fisher LSD* = 10.65, $p < .05$). There were no differences between the Compensation and Assistance groups or between the Stressed and No Stress groups.

There were no significant differences between the four groups on the Personal Growth dimensions of Autonomy and Task Orientation.

When consideration was given to the System Maintenance and System Change dimensions, there was a significant effect for the Work Pressure subscale, $F(3,56) = 9.98$, $p < .0001$. Post hoc analyses indicated that the No Stress group reported significantly less work pressure than the Compensation group (*Fisher LSD* = 11.31, $p < .05$), the Assistance group (*Fisher LSD* = 10.98, $p < .05$), and the Stressed group (*Fisher LSD* = 13.38, $p < .05$). No other differences were noted.

Further, there was a trend for between group differences on the Clarity subscale, $F(3,56) = 2.74$, $p = .052$. In relation to this variable, the No Stress group reported more clarity than did the Compensation group (*Fisher LSD* = 13.05, $p < .05$) and the Assistance group (*Fisher LSD* = 12.67, $p < .05$), with no other differences being apparent. No other subscale differences were indicated.

Table 13.

The mean scores and standard deviations for the subscales of the Work Environment Scale for each group.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
<i>Relationship dimensions</i>								
Involvement	42.2	17.5	41.9	18.8	59.1	13.5	51.2	16.2
Peer cohesion	37.4	19.8	34.3	23.0	52.7	24.9	51.8	17.3
Staff support	32.4	18.1	31.1	14.7	48.4	11.0	53.7	16.4
<i>Personal growth dimensions</i>								
Autonomy	40.5	17.2	39.2	18.6	52.9	18.0	51.9	17.4
Task orientat'n	41.6	21.3	50.0	19.6	48.4	18.4	44.4	16.4
<i>System maintenance and change dimensions</i>								
Work pressure	66.8	16.8	74.7	12.1	68.0	19.9	45.9	17.4
Clarity	31.6	20.7	34.7	14.7	41.0	21.1	48.8	19.2
Control	48.9	13.3	53.7	17.4	44.1	19.3	44.5	16.6
Innovation	40.7	17.5	42.7	17.8	43.6	21.1	45.9	18.7
Physical comf.	44.1	22.8	47.6	19.0	46.6	19.6	60.3	17.9

5.5 Discussion

When considering non-work related or general stressors, there was no evidence that these variables contributed to a claim for workers' compensation. Equivalent levels of minor irritants were noted. It has been evident in the literature that the build up of lower grade stressors over a period of time was more likely to result in an occupational stress response (e.g., McLean 1976) and more likely to result in a workers' compensation claim for psychological injury to be lodged. It would be expected, then, that a high level of daily hassles would be evident for the

Compensation group, and to a lesser extent, the Assistance group. This expectation would be based on the literature indicating that daily hassles do have a detrimental effect on employee wellbeing (e.g., Zohar, 1999).

However, it may be the case that the cumulative effect of repeated exposure to stressful situations requires a higher level of intensity or more disruption than would be evident from exposure to normal daily hassles. It may be that the accumulation of moderately stressful experiences, such as ongoing conflict with an adolescent child or a parent or partner with non-life threatening, chronic health problems, rather than minor or major events triggers an occupational stress response. Of course, the measurement of these so-called moderate stressors would be problematic in terms of the definition and operationalisation of such variables. These measurement problems already have been highlighted with existing assessment instruments (e.g., Brett et al., 1990; Rabkin & Struening, 1976).

Further, no differences between groups were noted for major life stressors despite the extensive literature that reports that stressful experiences outside of work make dealing with workplace stressors more problematic (e.g., Hobson, Delunas & Kesic, 2001; Sharma, 2000; Tyssen & Vaglum, 2002). An understandable inability of people to compartmentalise their stressful experiences into work and home would lead to an expected influence of stressful life events on workplace experiences. Indeed, this may be happening. However, if it did occur, the influences were of the same level of severity for all groups in this investigation. Stress-related workers' compensation claims in another sample also failed to report external events as

influential in the development of the work-related stress reaction (Dollard et al., 1999).

Although it could be argued that it is not the actual experience of a specific event that is stressful, but the particular interpretation placed on that event by the individual (e.g., Folkman & Lazarus, 1986), it is unlikely that this type of explanation has an influence here. The results in Chapter 4 indicated that no one group had a particular propensity to view events in a way that would predispose them to experience an event as stressful or distressing.

When consideration is given to the severity of the stressful experiences of the groups, reference can be made to the guidelines provided by the author of the test (Holmes, 1976) to determine likelihood of a negative health-related outcome from the experience of the stressful life events, taking into account overall number and severity of stressors. In all cases, the scores obtained by the groups were indicative of a high chance of becoming ill as a consequence of exposure to this degree of life stress.

Between group differences were evident in relation to the nature of the work environment. It was clear that relationship dimensions within the work environment were differentially affecting the groups. The lowest level of work involvement was reported by both the Compensation and Assistance groups. The highest level of involvement was reported by the Stressed group. With involvement defined as the degree to which individuals are concerned about and committed to their jobs (Moos, 1974), it may be that this relatively higher level of involvement of the Stressed group leads the participants in this group to persevere with work-related tasks

despite the development of distressing symptoms. Members of this group may prefer not to seek assistance for the management of their symptoms because of a strong commitment or loyalty to the organisation or the fact that self-concept for this group may be strongly linked to their work-role.

Interestingly, the degree of involvement did not distinguish the Compensation and Assistance groups although it could be argued that a decision to lodge a workers' compensation claim would reflect a lack of interest or connection with the job or organisation. The results indicated that lack of involvement did not lead to the development of work-related stress symptoms, otherwise the stressed group would also have reported low involvement. However, low involvement may have resulted in the decision to act to seek assistance for stress symptoms as the motivation to persist in the face of stress or distress would be removed.

It is evident in the literature that a negative relationship can exist between the degree of involvement or commitment to the organisation and work-related stress (Dobrevva-Martinova et al., 2002). However, the results of this study suggested that this association is not linear. Support for this proposition has been found elsewhere. For example, selective emotional involvement has been suggested to have a protective or adaptive function when examining the responses of new teachers to workplace stressors (Yagil, 1998). Personality hardiness was related to organisational involvement among nurses (Turnipseed, 1999). Work environments that encourage employee involvement have been reported to elicit lower levels of stress in their employees (Mackie, Holahan & Gottlieb, 2001).

In contrast, higher levels of involvement have been related to poorer psychological and physical wellbeing (Burke, 2000). Greater levels of involvement have been linked to the experience of burnout (Acker, 1999). Further, a perceived need to control others was reported to be related to both job involvement and work stress among a range of other negative outcomes (Mudrack & Naughton, 2001). High levels of involvement have been related to burnout and feelings of entrapment in sporting coaches (Raedeke, Granzyk & Warren, 2000). Therefore, it may be the nature of the involvement that determines whether a negative or a positive response develops.

It was also evident that there were group differences in peer cohesion in the workplace. It was the Assistance group who reported the poorest peer cohesion whereas the Compensation group did not statistically differ from other groups in their assessment of the peer cohesion in their workplaces. Nevertheless, the score obtained by the Compensation group still would be considered to be evidence of a deficiency in the area of peer cohesion at work. Despite the emphasis in the occupational stress literature on support in the workplace (e.g., Baruch-Feldman, Brondolo, Ben-Dayana & Schwartz, 2002; Bradley & Cartwright, 2002; Evans & Steptoe, 2001; Kalliath & Beck, 2001), relatively little attention has been paid to peer cohesion as a separate construct.

The relative lack of peer cohesion for both the Compensation and Assistance groups may have removed a barrier to seeking resolution of the problem by a means other than negotiation in the workplace. If solidarity in the workplace was high, an atmosphere may be provided where discussion could take place about the

employee's needs and the organisation's preparedness to meet those needs. If solidarity was low, it may be that there would be a need to address the problem without reference to co-workers and the organisation. Outside help, in the form of a workers' compensation claim or professional assistance may be made easier because strong bonds with colleagues did not exist and, therefore, would not be further damaged.

It was both the Compensation group and the Assistance group that reported significantly deficient levels of staff support that set them apart from other groups. It has been suggested that if support is present, then ability to cope with other stressors is enhanced and that in the absence of staff support, the ability to withstand the pressures of workplace stressors is diminished (e.g., Haines, et al., 1996). It has been determined that coping with workplace stressors is enhanced by peer support, dedicated staff meetings, and support from senior staff members (Linke, Wojciak & Day, 2002).

The lack of staff support may account for the need to seek help with the management of symptoms. However, the lack of difference between the compensation and assistance groups indicates that this factor cannot account for the lodging of a workers' compensation claim.

It has been suggested that involvement in the workers' compensation system through lodging a claim can be seen as detrimental to employer-employee relations (Kenny, 1995a), and that some claimants experienced negative reactions from supervisors and managers (Dollard et al., 1999). It might be argued then, that merely lodging a workers' compensation claim could alter the perception of the

individual about the nature and extent of support received in the workplace. However, this appears not to be the case because both the Compensation and the Assistance groups reported a work environment that lacked support. Of course, it could still be said that the perception of lack of support or, indeed, the negative reaction from supervisors or managers could be in response to the failure to cope by the members of both the Compensation and Assistance groups.

System Maintenance and System Change dimensions also were differentially endorsed by the groups. In particular, all of the stressed groups reported more work pressure than did the No Stress group. The highest level of work pressure was not reported by the Compensation group but by the Assistance group.

It is not surprising that work pressure was reported by all of the stressed groups as it has been associated with the experience of psychological distress (e.g., Grzywacz & Marks, 2000; Knussen & Niven, 1999; Lacoursiere, 2001). Indeed, it is interesting to note that it has been reported that Australians believe that increased work pressure is acceptable and expected in current workplaces (Waryszak, 1999). Nevertheless, work pressure is perceived to be a negative aspect of working life (Johnson & Templeton, 1999). Increased work pressure has been identified as being caused by factors such as failure to replace workers when they are on leave (Cant, O'Loughlin & Legge, 2001). It also has been suggested that workers who scored lower on measures of personality hardiness, reported more work pressure (Turnipseed, 1999).

Excessive work pressure has been associated with high levels of organisational control whereas low work pressure has been related to high levels of task control

(Carayon & Zijlstra, 1999). Therefore, in situations where the individual is able to exert some influence, the pressure associated with high workloads is perceived to be more manageable. It may also be the case that high levels of task control are associated with lower levels of psychological distress (Carayon & Zijlstra, 1999; Karasek, 1990). Therefore, the experience of stress at work may be associated with low task control that results in the perception of the pressure at work as being greater than it would otherwise be perceived to be the case.

Finally, the Compensation and Assistance groups reported the least work clarity. The lack of communication about rules and expectations and the consequent increase in uncertainty have resulted in help-seeking for the management of stress reactions but have not specifically influenced the decision to lodge a workers' compensation claim.

High levels of role clarity at work have been associated with self-efficacy beliefs (Chen & Bliese, 2002), and personality hardiness (Turnipseed, 1999). It has been suggested that the negative influence of poor clarity in terms of psychological distress and job dissatisfaction may be reduced by the impact of conscientiousness. That is, conscientious workers feel less influence of poor clarity in the workplace than do less conscientious workers (Miller, Griffin & Hart, 1999). Although not measured in this study, it would be unlikely that all the members of the Compensation and Assistance groups would lack conscientiousness. It should be noted that some forms or levels of conscientiousness (e.g., overcommitment) could be considered to be problematic and increase the likelihood of poor work outcomes (e.g., Bosma et al., 1998; de Jonge, Bosma et al., 2000).

In summary, it would appear that whereas some environmental factors, particularly those in the workplace, may influence the decision to seek help for the management of symptoms, there was no factor that would indicate why some people go on to lodge a workers' compensation claim whereas others do not. There is sufficient literature to feel confident that a link exists between these types of variables and the development of stress symptoms at work. However, it is not sufficient to say that the factors that would precipitate a workers' compensation claim are merely more intense or severe environmental stressors.

CHAPTER 6

THE NATURE OF WORKPLACE STRESSORS

6.1 Introduction

There is little doubt that the nature of the experiences of workplace events affects the development of occupational stress responses. The influence of the nature of workplace stressors is recognised in Berry's model. Work-related stressors are those events that occur in the workplace or are related to the work environment that have the potential to negatively influence the psychological and physical functioning of an individual exposed to them (Hurrell, Nelson & Simmons, 1998).

Work-related stressors may be considered to be acute or chronic (Carayon, 1995). Chronic stressors are defined by the nature and duration of the problem situation (Carayon, 1995; Gottlieb, 1997) and the likelihood that the individual will be repeatedly exposed to the conditions (Barling, 1990). In contrast, acute stressors are extreme and isolated events that the individual perceives as threatening (Anshel, 2000). Their duration is time limited and the likelihood of repeated exposure is low (Barling, 1990).

Although it is certainly the case that occupational stress responses may develop from exposure to acute events (Eden, 1990) and non-work related areas of psychology have primarily focused on more acute stressors (Day & Livingstone, 2001; Holmes & Rahe, 1967), there is evidence that it is chronic stressors that represent the greatest problem in relation to workers' compensation claims for psychological injury (Haines et al., 1996). In fact, it has been postulated that acute stressors have been relatively neglected in the area of occupational stress (Eden, 1990). Indeed, it has been claimed that models of the development of occupational stress are better suited to the examination of chronic stressors and cannot adequately

account for the development of stress responses following exposure to an acute work-related stressor (Kleber & van der Velden, 1996).

Given the multitude of stressors that may occur in the workplace, the following review of the literature will examine only examples of stressors relating to organisational, job-related and interpersonal events, although it is recognised that others have considered more fine-grained categorisations of workplace events (e.g., Cooper & Marshall, 1976).

6.1.1 Organisational stressors

Organisational change and pressures for change have been shown to have adverse effects on well-being (e.g., Blythe, Baumann & Giovanetti, 2001; Burke & Leiter, 2000; Burke & Nelson, 1998; Maurier & Northcott, 2000; Roskies & Louis-Guerin, 1990; Rush, Schoel & Barnard, 1995). Similarly, lower levels of organisational change have less impact on well-being. For example, in a study of lawyers, lower levels of anxiety and depression were linked to lower levels of organisational change (Callan et al., 1994). The relationship between organisational change and the development of psychological maladjustment may be explained by the ambiguity and uncertainty that is created by the change processes (Noer, 1993). Even for staff remaining after downsizing, distress may be experienced because of the uncertainty experienced by all (Marks, 1994).

Job insecurity due to companies going into receivership has been demonstrated to negatively impact on psychological well-being. The results of a longitudinal study conducted at two time intervals, the first being seven years before receivership

and the second seven months post-receivership, indicated that job insecurity was associated with increased psychosomatic complaints and anxiety (Mohr, 2000).

Restructuring of a large public transport organisation in Australia resulted in previously very secure jobs being made insecure, with four departments in particular being identified as vulnerable to closure or downsizing (Dekker & Schaufeli, 1995). From data collected at two time periods two months apart, it was evident that the job insecurity created by the organisational change resulted in deterioration in psychological adjustment in addition to job and organisational withdrawal. In addition, the relationship between job insecurity and negative outcome was not moderated by support from management, colleagues or unions. It was interesting to note that those employees who knew that their jobs would be abolished experienced fewer psychological symptoms than those faced with continuing uncertainty.

Nurses who reported more extensive restructuring at the hospital where they were employed experienced a range of negative outcomes and had poorer perceptions of the support offered (Burke & Greenglass, 2001c). In comparison with the nurses who reported less restructuring, those who reported extensive restructuring also reported that both the hospital and their unions offered little support, poorer job satisfaction, more job insecurity, and more psychological maladjustment. In this case it was evident that when the participants perceived that the level of support from their employer was high, better psychological and work-related outcomes were noted.

It may be the case that the way in which a restructuring is implemented will determine how well the staff cope with the forced changes. For example, it has been

suggested that the typical approach to restructuring creates feelings of demoralisation, alienation and anger (Burke & Leiter, 2000; Burke & Nelson, 1998; Noer, 1993).

Burke and Greenglass (2001c) identified three specific stressors that characterised downsizing and restructuring. These were increased workload because of reduced staff numbers, involuntary staff redundancy and the use of generic workers. Although organisational change, in general, increased reported symptoms of burnout, for those nursing staff who experienced the greatest increases in workload, levels of emotional exhaustion and cynicism were the highest. Therefore, the organisational stressor was creating a change in a job-related demand that resulted in an increased stress response.

Organisational stressors may result in negative outcomes irrespective of the severity of the stressor. For example, a study comparing organisational sources of pressure in Australian and UK hospitals found that an Australian sample of hostile workers rated their work environments as more positive and reported less pressure at work that had been generated by the organisation. However, even though less pressure was reported, the Australian and UK samples reported comparable psychological and job satisfaction. The Australian sample reported a superior physical health status (Duffy & Chan, 2001).

Particular occupational areas have undergone restructuring in recent years. For example, the health care system in Canada experienced hospital restructuring, staff downsizing, departmental mergers and departmental closures (Burke & Greenglass, 2001c). The staff who remained after restructuring were reported to

have experienced increased psychological distress as a response to increased workload, job insecurity, and a range of negative emotional responses such as alienation, anger and betrayal (Armstrong-Strassen, 1997; Havlovic, Bouthillette & van der Wal, 1998). Therefore, it is evident that extensive restructuring sets in train a number of changes in the workplace that are stressful for employees. Restructuring and downsizing have been demonstrated to impact directly on other stressors and indirectly lead to psychological effects. For example, from an examination of a group of nurses, it was evident that these stressors were significantly related to the experience of work-family conflict, with work-family conflict subsequently impacting on psychological health (Burke & Greenglass, 2001a).

Downsizing is a consequence of organisational restructuring and results in voluntary or involuntary redundancy. Loss of job not only affects the redundant worker, but can have significant influences of the retained staff (Maurier & Northcott, 2000). Downsizing has been demonstrated to lead to specific negative psychological and physical effects such as higher rates of cardiovascular disease, myocardial infarction, psychological maladjustment, suicide, and asthma (Zeitlin, 1995).

The effects of exposure to repeated organisational downsizing has been explored. Repeated downsizings affected managers in terms of their ability to positively cope with workplace stressors (Armstrong-Stassen, 1997). Further, an investigation of research and development engineers indicated that both past and

anticipated downsizings were equally influential on behaviour and mood states (Jalajas & Brommer, 1999).

In summary, stressors that exert an organisation-wide influence have been demonstrated to be stressful for the individual. The impact on the individual has been suggested to relate to increased uncertainty at times of change, or increased workload or change in job demands because of changes in staff numbers and responsibilities. When restructuring and downsizing are taken as examples of organisational stressors, it is evident that such events can have significant influences on psychological and physical functioning and can affect the way in which people cope with stress at work.

6.1.2 Job-related stressors

Factors directly related to an individual's position at work have been identified as contributing to the experience of work stress. Role stress including role conflict, role ambiguity and role overload have been frequently studied factors (Tetrick, 1992). Role conflict occurs when role demands facing the individual are inconsistent with their own goals, abilities, values or beliefs. Role ambiguity refers to a lack of adequate information available in order for an individual to carry out a role (Deckard & Present, 1989). Role overload occurs when the demands associated with the job exceed the personal and work-related resources resulting in a detrimental effect on the ability to meet work goals (Osipow & Spokane, 1992). Role stress has been demonstrated to be related to psychological burnout. However, results have not all been consistent (e.g., Burke & Greenglass, 1993).

Role stress has been demonstrated to lead to significant psychological effects. Work role conflict and work role ambiguity have been demonstrated to be significant predictors in the experience of all three facets of burnout, emotional exhaustion, depersonalisation, and personal accomplishment (Manlove, 1993, 1994). The effects of work role conflict and work role ambiguity on emotional exhaustion and depersonalisation were buffered by social support.

When examining psychological well-being and job satisfaction, role ambiguity has been related to lower levels of psychological well-being (Dollard & Winefield, 1994; Jimmieson & Terry, 1993; Terry, Neilsen & Perchard, 1993), anxiety and depression (Price & Hooijberg, 1992), poorer job performance (Babin & Boles, 1996), lower levels of job satisfaction, poor self-confidence, low self-esteem, and intention to leave the job (Hughes, 2001), tension (Wolden & Good, 1995), and burnout (Bedini, Williams & Thompson, 1995). The experience of role conflict has been reported to predict low depersonalisation (Jimmieson & Terry, 1993), poor job satisfaction (Jimmieson & Terry, 1993; Terry et al., 1993; Yousef, 1999), tension (Wolden & Good, 1995; Yousef, 1999), physiological signs of stress (Yousef, 1999) and burnout (Bedini et al., 1995). Finally, role overload has been reported to be associated with tension (Wolden & Good, 1995) and burnout (Bedini et al., 1995). In general, role stress among military employees was a significant predictor of individual strain, poorer job satisfaction, and commitment to the job (Dobrevá-Martinova et al., 2002). In particular, this study indicated that role conflict was the variable most consistently related to the various outcomes.

Conflicting results with regard to role conflict and burnout have been demonstrated. In a study of burnout in school based educators, no relationship was found between role conflict and burnout (Burke & Greenglass, 1993). Further, in a study of military instructors, a direct influence on emotional exhaustion was found only for role overload. Mood impacted on the association between emotional exhaustion and both role overload and ambiguity. No evidence of a direct or indirect influence on emotional exhaustion was evident in relation to role conflict (Barling & MacIntyre, 1993). In a study of teachers, results indicated the importance of role conflict among other factors in determining teacher burnout whereas role ambiguity was not relevant in the causal process (Byrne, 1994).

The influence of role stress may be more complex than simple, direct relationships would suggest. It also has been demonstrated to be buffered by other factors. The negative consequences that resulted from the experience of role ambiguity were more evident for workers who felt they had little control over job-related matters whereas the most noteworthy negative effects of role conflict were experienced by the participants who reported little understanding from their supervisor (Jimmieson & Terry, 1993). The negative influences of role conflict and work overload were determined to be buffered by the availability of supervisor support (Terry et al., 1993). Social support has been demonstrated to buffer the effect of work role conflict and ambiguity on perceived emotional exhaustion and depersonalisation (Manlove, 1994). When role stress was evident, cognitive hardiness was demonstrated to improve job satisfaction, increase commitment to the organisation, and enhance performance. Further, the negative effects of role stress

were ameliorated by a greater level of organisational support (Venkatachalam, 1995).

Occupational level has also been demonstrated to influence the experience of role stress. In comparison with employees at lower occupational levels, zinc manufacturing company employees who were at higher occupational levels reported lower levels of role ambiguity and role conflict. It was postulated that the employees who had been promoted to a high level were able to develop the necessary skills to cope with role conflict and role ambiguity (Raju & Madhu, 1994). In Indian public sector employees, individuals in service areas experienced less organisational stress and greater quality of work life than individuals in production areas (Pattanayak, Sarangi & Mishra, 2000).

The investigation of the relationship between job-related factors and work stress has been approached in a number of ways. Structured interviews have been conducted to identify the existence and effects of role stress. Using such a method, it was established that a sample of women psychologists identified role conflict as a stressor unique to them (Schoup, 1995). Studies have been conducted using survey measures. For example, a questionnaire administered to nurses and physicians supported a model that hypothesised that role conflict and ambiguity affected levels of job tension, job satisfaction, and propensity to leave (Peiro, Gonzalez-Roma & Lloret, 1994). Sales managers and associates indicated through surveys that role conflict, role overload and role ambiguity were significant predictors of tension (Wolden & Good, 1995).

Surveys have also been repeatedly administered to samples over time. Military instructors completed questionnaires at the end of each work day for between 10 and 20 workdays and, as mentioned, it was demonstrated that a direct effect on emotional exhaustion was evident in relation to role overload. However, role overload and ambiguity and emotional exhaustion relationships were influenced by mood state (Barling & MacIntyre, 1993). A mixed sample of employed participants were interviewed four times six weeks apart and results showed role ambiguity and role conflict, among other stressors, lead to job dissatisfaction, anxiety, depression and anger (Abramis, 1994).

Longitudinal studies have also been conducted. Welfare administered who were peer-rated as effective in their jobs were questioned with regard to their views about their work situation. Follow-up interviews were conducted over one year. It was evident that over time there had been some development of specific skills that could be used to effectively deal with role conflict (Jones, 1993).

In summary, certain patterns of role stress have been identified as impacting on the psychological functioning of the individual employee. The most commonly adopted approach to the examination of job-related stressors has been to investigate the impact of global stressors such as role ambiguity and role overload. These types of stressors can be investigated in a wide range of occupations.

6.1.3 Interpersonal stressors

The nature of interpersonal relationships in the workplace has been determined to be an important factor associated with job satisfaction (Skogstad,

Dyregrov, & Hellesoy, 1995). Interpersonal stressors may range from workplace incivility (Andersson & Pearson, 1999; Cortina, Magley, Williams, & Langhout, 2001) to verbal abuse (Keashley, Trott & MacLean, 1994) to bullying (Einarsen & Skogstad, 1996; Leymann, 1996; Zapf, Knorz & Kulla, 1996). Indeed, physically violent behaviour in the workplace has been reported (e.g., Cole et al., 1997). Interpersonal maltreatment in the workplace has been reported to have a negative impact on job satisfaction (e.g., Cortina et al., 2001; Dekoekkoek, 2000; Johlke, Duhan, Howell, & Wilkes, 2000) with positive interpersonal relationships leading to higher job satisfaction (e.g., de Jonge et al., 2001; Ray, 2000). Longitudinally, interpersonal conflict has been demonstrated to predict work disability in women (Appelberg, Romanov, Heikkilae, Honkasalo, & Koskenvuo, 1996).

Interpersonal conflict has been identified as contributing to an individual's experience of stress at work. For example, one study demonstrated that interpersonal conflict along with other occupational stressors predicted a negative psychological response (Rainey, 1995). This repeatedly has been shown to be the case (e.g., Frone, 2000; Lin & Lai, 1995; Peeters, Buunk, & Schaufeli, 1995). In fact, an examination of the literature found little evidence of this relationship not existing. One study found that it was more relevant for some occupational groups than others (Narayanan, Menon, & Spector, 1999). Nevertheless, the relationship was still apparent. It has been suggested that interpersonal conflict may represent a more significant stressor in the workplace than other types of stressors (Hahn, 2000). Interpersonal conflict has been reported to occur at a high rate (Bolger, DeLongis, Kessler & Schilling, 1989; Smith & Sulsky, 1995) and to be the most commonly

reported workplace stressor among people receiving workers' compensation for psychological injury (Haines et al., 1996).

A comparison was made of the effects of organisational and interpersonal stressors on the reaction of the employee at the time of the experience of the workplace stressor (Cardoz, Haines & Williams, 2002). This was achieved using a guided imagery technique to recreate the reactions to the stressors for the individual participants. Results indicated that the rapid resolution of increased psychophysiological arousal and negative psychological response in reaction to an organisational stressor was not mirrored for an interpersonal stressor. That is, there was a continuation of negative response beyond the completion of the stressful episode suggesting the interpersonal conflict stressors may have a more enduring and clinically significant effect than other types of workplace stressors.

The experience of interpersonal conflict has been demonstrated to lead to specific psychological outcomes. For example, the experience of interpersonal conflict has lead to the development of burnout (Hillhouse & Adler, 1997; Rainey, 1995, 1999), psychological distress (Lin & Lai, 1995), poor mental well-being (Tyler & Cushway, 1995), and depressive and other symptomatology (Eells, Lacefield & Maxey, 1994) including the development of posttraumatic stress symptoms (Bjoerkqvist, Oesterman & Hjelt-Baeck, 1994).

It is also the case that interpersonal conflict at work can result in job-related or organisational outcomes. For example, both specific and global job dissatisfaction has been reported to be a consequence of interpersonal conflict (Donovan, Drasgow & Munson, 1998; Einarsen & Raknes, 1997; Keashley et al., 1994; Leather, Beale,

Lawrence & Dickson, 1997; Moorman, 1991). Other negative outcomes have been decreases in the level of appropriate shared behaviours (Bettencourt & Brown, 1997; Bies & Tripp, 1996; Folger & Skarlicki, 1998; Greenberg, 1990; Moorman, 1991; Organ & Ryan, 1995), lower levels of commitment to the organisation (Barling & Phillips, 1993; Leather et al., 1997), more absenteeism (Barling & Phillips, 1993), and greater turnover intentions (Donovan et al., 1998).

One factor determining the impact of interpersonal conflict has been organisational level of the individuals involved. For example, Frone (2000) developed a model from information obtained from a sample of young workers that postulated that organisation-related outcomes such as job satisfaction, level of commitment to the organisation, and intention to leave were predicted by conflict with supervisors. In contrast, individual-related outcomes such as depression, lower self-esteem and the development of somatic symptoms were the result of conflict with co-workers. Similarly, Hillhouse and Adler (1997) found intraprofessional conflict for nurses was less psychologically damaging than interprofessional conflict, for example, with doctors. The nurses who identified interprofessional conflict with doctors also reported high levels of affective and physical symptoms. The authors suggested that intraprofessional conflict is associated with less threat, and more opportunity for problem resolution compared to interprofessional conflict where the other profession is associated with more power and where there is less frequency of contact.

As mentioned, the relationship between interpersonal conflict and stress at work seemed to be more relevant for some occupational groups than for others. It

has been demonstrated for umpires (Rainey, 1995), nurses (Hillhouse & Adler, 1997; Tyler & Cushway, 1995), secretaries (Peeters, Buunk, & Schaufeli, 1995), and teachers (Kelly & Berthelsen, 1995; Whitehead & Ryba, 1995). It appeared to be less relevant for clerical workers when compared to university professors and sales assistants (Narayanan et al., 1999). It may be that sampling differences produce these results or it may be that differences in factors such as work environment can account for the problems with interpersonal conflict of some occupational groups.

The investigation of interpersonal conflict as a stressor at work has not been limited to Western cultures. Tsai (1993) found stressors in work situations for Chinese nurses were similar to those identified in the literature in Western cultures, including interpersonal conflict. The author discussed this in terms of the emphasis Chinese nurses place on the value of personal harmony. Auxiliary nurses in Mexico also frequently reported interpersonal stressors in the work environment (Douglas, Meleis, Eribes & Kim, 1996).

Although many studies have considered single sex samples (e.g., Portello & Long, 2001), there is some evidence that interpersonal conflict is more stressful for women than for men (e.g., Appelberg et al., 1996; Hutri & Lindeman, 2002) and was more frequently reported by women than men in a study of people on compensated leave because of psychological injury at work (Haines et al., 1996).

A variety of methods have been used to determine the experience of interpersonal conflict. Questionnaires have been widely employed to indicate the extent to which interpersonal conflict is a significant stressor at work. In completing such questionnaires, baseball and softball umpires (Rainey, 1995), nurses

(Hillhouse, & Adler, 1997; Tyler & Cushway, 1995), police officers and deputy sheriffs (Lauferweiler, 1995) and accident and emergency personnel (Hetherington, 1995) identified interpersonal conflict as stressful.

A further method of data collection has used diary recordings of incidents. In analysis of these entries, one study identified interpersonal conflict as a source of stress in university secretaries (Peeters, Buunk, & Schaufeli, 1995) and found, in fact, that psychological strain was better accounted for by interpersonal factors rather than job demands. Similarly, analysis of diary entries has demonstrated the stressful effects of interpersonal conflict in university professors and sales associates (Narayanan et al., 1999), and in preschool teachers (Kelly & Berthelsen, 1995). Kelly and Berthelsen (1995) identified the stressors experienced by preschool teachers, including time pressures, children's needs, non-teaching tasks, maintaining early childhood philosophy and practice, personal needs, issues with parents of the children, interpersonal relationships, attitudes and perceptions about early childhood programs. The authors discussed the interpersonal relationships theme among stressors as being related to the nature of the preschool environment, being interactive and people-oriented, and the necessity for it to remain positive.

There are two specific forms of interpersonal conflict at work that are worthy of note and fall outside the typical manifestations of this stressor: physical violence and sexual harassment. Workplace violence can be considered to be an extreme form of interpersonal conflict (Cole et al., 1997). There are a range of work-related consequences of violence at work including reduced productivity, lowered morale, poor job satisfaction, increased absenteeism and a rise in turnover intention

(Mantell, 1994; Stockdale & Phillips, 1989). These consequences are in addition to a range of psychological outcomes such as anxiety, depression, sleep disturbances, feelings of helplessness, and posttraumatic stress symptoms (Bjoerkqvist et al., 1994) along with burnout and psychosomatic symptoms (Cole et al., 1997).

Finally, sexual harassment has been reported to involve unwelcome sexual advances, requests for sexual favours, and verbal or physical behaviour of a sexual nature as a direct forms of harassment (Petreocelli & Repa, 1992) or display of sexually provocative material or sexual conversations or jokes as indirect harassment (Richman-Hirsch & Glomb, 2002). This type of workplace behaviour or work environment has been reported to provoke intensely negative psychological responses both for the target of the harassment (Bjoerkqvist et al., 1994) and other workers (Bennett & Lehman, 1999), both male and female (Richman-Hirsch & Glomb, 2002).

In summary, interpersonal conflict at work almost universally has been demonstrated to be detrimental to the wellbeing of employees. This has been determined to be the case, not only with the more severe manifestations of interpersonal conflict such as violence in the workplace, but also with seemingly less severe types such as workplace incivility.

6.2 The current study

The current study aimed to examine the differences between the four groups in terms of their experiences of workplace stressors. This was approached in two ways. Firstly, consideration was given to the globally defined work stressors such as

role ambiguity and role conflict. Secondly, examination was made of the frequency with which the groups reported the experience of specific stressors and group differences of the self-reported severity of these stressors. A range of specific work stressors have been identified as precipitating workers' compensation claims for psychological injury (Dollard et al., 1999; Haines et al., 1996). Following from the view that lodging a workers' compensation claim would represent the most severe outcome, followed by seeking professional assistance without lodging a claim, then followed by not seeking assistance for stress symptoms, it was hypothesised that the Compensation group would experience the most severe workplace stressors and would experience specific stressors most often, followed by the Assistance group, then the Stressed group, and then the No Stress group.

6.3 Method

6.3.1 Participants

As for Study 1.

6.3.2 Materials

The questionnaires used in Study 3 are presented in Appendix G.

The Occupational Stress Inventory (OSI; Osipow & Spokane, 1992) was used to measure the level of occupational adjustment experienced by each individual. The inventory measured three dimensions of occupational adjustment, occupational stress, psychological strain, and coping resources. Each dimension was

composed of a number of subscales. The occupational stress dimension was measured by a set of six subscales which are collectively called the Occupational Roles Questionnaire (ORQ). The ORQ scales are Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment.

The internal consistency of the ORQ was determined to be .89 with alpha coefficients ranging from .64 for Responsibility to .88 for Role Insufficiency. The validity of the scale has been demonstrated by a range of factor analytic studies, correlational studies, and outcome studies (Osipow & Spokane, 1992).

A Sources of Work Stress questionnaire, devised by the author and based on the work of Haines and colleagues (1996), was administered to determine the particular nature and extent of stress. Haines and colleagues (1996), working from an existing job stress questionnaire (see Davis et al., 1995), expanded the number of specific stressors by identifying the stated reasons of Tasmanian public sector employees for lodging a workers' compensation claim. From this, items were developed that elicited information from the participant about the nature of each stressor.

The stressor categories included lack of control, information gap, cause and effect, interpersonal conflict, blocked career, alienation, work overload, work underload, physical work environment, value conflict, exposure to trauma, restructuring, new technology, lack of training, career path stress, physical difficulties, lack of support, personal demands and responsibilities, and harassment and disciplinary action. Participants indicated if an item was a source of stress for them. For items that were a source of stress for participants, they then indicated the

extent to which the stressor was experienced according to a four point scale of severity. As this is the first time that this instrument has been used, no psychometric evaluation of its properties has been conducted.

6.3.3 Procedure

Participants completed questionnaires as part of the initial package provided at the commencement of the study.

6.3.4 Design

A four group questionnaire study was used. The groups were Compensation, Assistance, Stressed and No Stress. The dependent variables were global work stressors, specific work stressors and severity of specific work stressors.

6.3.5 Data analysis

Analyses of variances were used to examine between group differences on the dependent variables. In addition, chi-square analyses were used to determine differences between the groups in relation to the experience of the specific work stressors. A significant criterion of .05 was adopted.

6.4 Results

ANOVA summary tables are presented in Appendix H.

6.4.1 General work stressors

A group comparison was made of the occupational stress subscales of the OSI. The means and standard deviations of the four groups for the Occupational Stress Inventory subscales are presented in Table 14.

There was a significant between group difference for Role Overload, $F(3,56) = 5.29$, $p < .003$. Post hoc analyses indicated that the No Stress group reported less role overload than did the Compensation group (*Fisher LSD* = 7.88, $p < .05$) and the Assistance group (*Fisher LSD* = 7.88, $p < .05$). No other significant differences were noted.

Table 14.

The mean scores and standard deviations for the occupational stress subscales of the OSI for the four groups.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Role overload	54.9	15.3	52.8	9.6	50.0	14.5	40.6	7.2
Role insuffic.	51.8	13.7	57.9	9.2	48.2	8.0	54.6	13.0
Role ambiguity	56.4	12.1	55.1	8.1	52.2	12.2	52.9	12.6
Role boundary	58.0	12.8	57.8	9.4	53.1	10.3	51.9	9.7
Responsibility	57.2	15.8	51.4	10.2	48.8	9.1	46.4	9.9
Physical envir.	59.6	14.8	52.8	11.2	52.9	9.2	51.9	14.9

6.4.2 Specific sources of occupational stress

Lack of control

Having little input into decisions at work, insufficient authority to perform duties, having no options for change, and little influence into work-related matters characterised lack of control as an occupational stressor. There were no significant differences between the frequencies with which each group reported the items in this subscale. Figure 2 presents the percentage of participants from each group reporting the items related to lack of control.

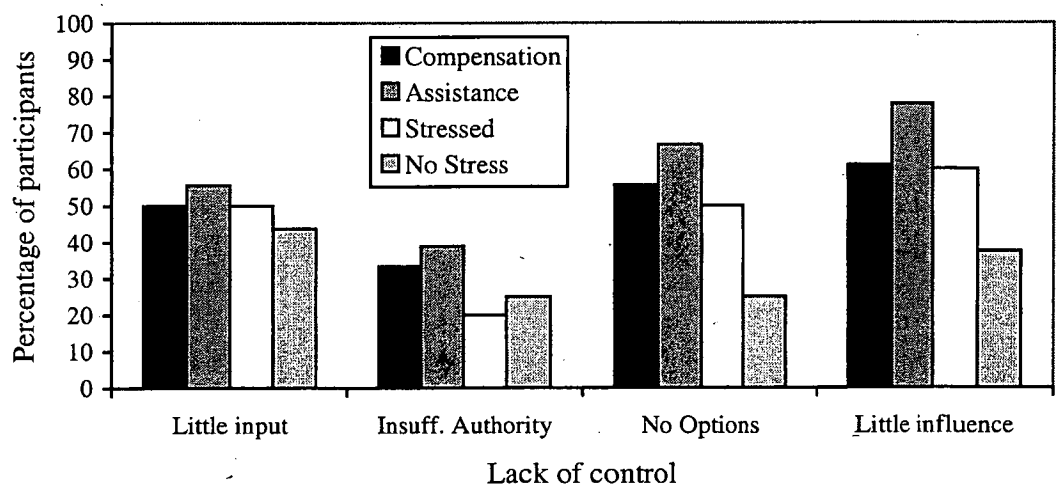


Figure 2.
The percentages of participants in each group reporting each of the lack of control stressors.

Information gap

Comparisons were made between groups in relation to the occupational stressors that characterised an information gap in the workplace: lack of information about responsibilities, lack of information about changes in the workplace, lack of

information about work performance/assessment criteria, and secrecy about workplace practises and changes. There were no significant differences between the frequencies with which the four groups reported the items in this subscale. Figure 3 presents the percentage of participants from each group reporting each of the cause and effect stressors.

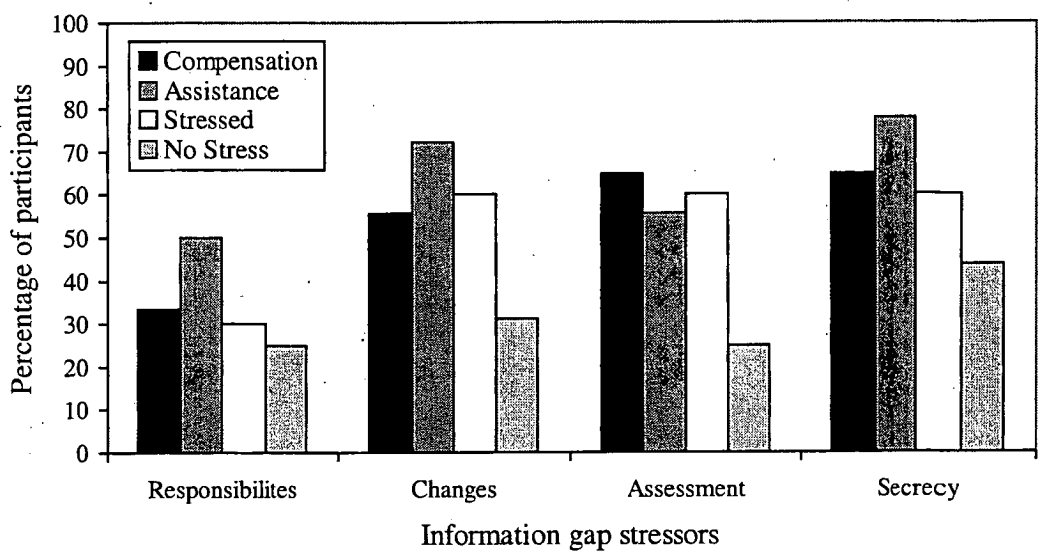


Figure 3.
The percentages of participants from each group reporting each of the information gap occupational stressors.

Cause and effect

Receiving no recognition for work effort, the influences of workplace politics, others taking credit for achievement, and having to reach unachievable goals combine to form a cause and effect category of workplace stressors. Group comparisons were made. There was a significant difference between groups for receiving little or no recognition for work effort, $\chi^2(3, N = 61) = 9.33, p < .03$, with post hoc comparisons indicating the Compensation group was more likely to report

this stressor and the No Stress group was less likely to have experienced this stressor. In addition, a between group difference was noted for the stressor relating to the influences of workplace politics, $\chi^2(3, N = 61) = 9.70, p <.03$, with the Compensation group being more likely and the No Stress group being less likely than expected to report this stressor. Finally, differences between groups were noted for the stressor of having to reach unachievable goals, $\chi^2(3, N = 61) = 12.11, p <.007$. In this case, the Compensation group was more likely and the No Stress group less likely to report this stressor. The percentages of participants from the four groups reporting cause and effect stressors are presented in Figure 4.

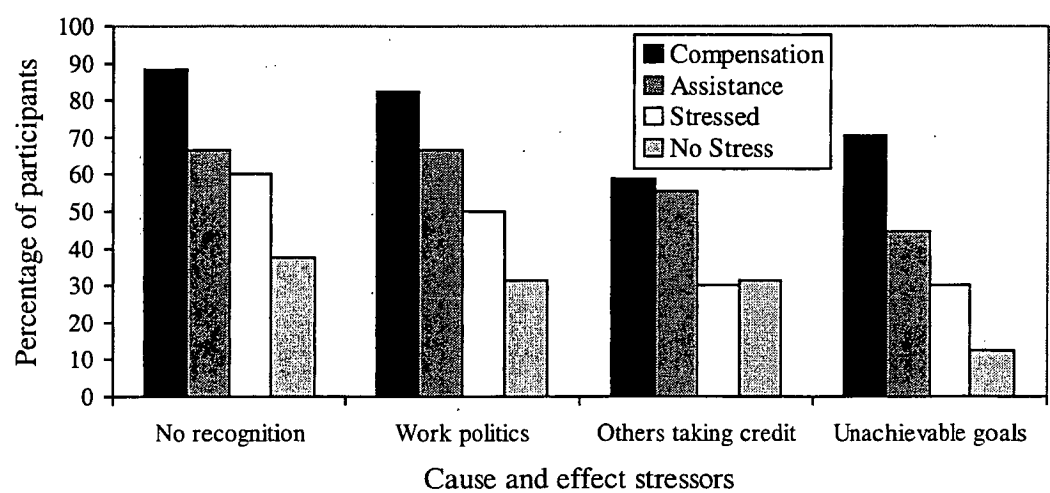


Figure 4.
The percentages of participants from each of the four groups reporting each of the cause and effect workplace stressors.

Interpersonal conflict

Interpersonal conflict in the workplace as characterised by conflict with colleagues, conflict with supervisors, being caught between conflicting parties, and an atmosphere of mistrust were examined in terms of the percentage of participants

from each group reporting these stressors. There was a trend for a group difference on the variable relating to conflict with colleagues, $\chi^2(3, N = 61) = 7.60, p = .055$, with the Assistance group being more likely to report this stressor and the No stress group being less likely to report this stressor. There was also a trend for conflict with supervisors, $\chi^2(3, N = 61) = 7.64, p = .054$, with the No Stress group being less likely than expected to report this stressor. A significant result was obtained for the stressor of working in an environment that is characterised by an atmosphere of mistrust, $\chi^2(3, N = 61) = 9.00, p < .03$. In this case, the No Stress group was less likely to report this stressor. The percentages of participants from the three groups reporting each interpersonal conflict stressor are presented in Figure 5.

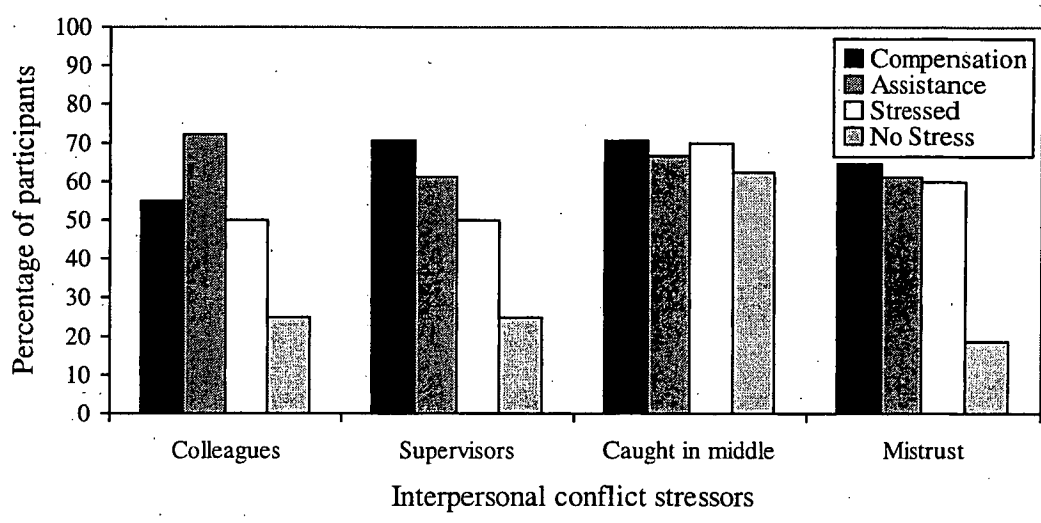


Figure 5.
The percentages of participants from each of the four groups reporting each of the interpersonal conflict stressors.

Blocked career

A between group comparison was made of the experience of stressors related to a blocked career as characterised by the experience of limited opportunities, reduced opportunities, no promotion, and specific career blocks. There were no significant differences between groups on each of the variables. Figure 6 presents the percentages of participants from the four groups reporting the experience of each of the blocked career stressors.

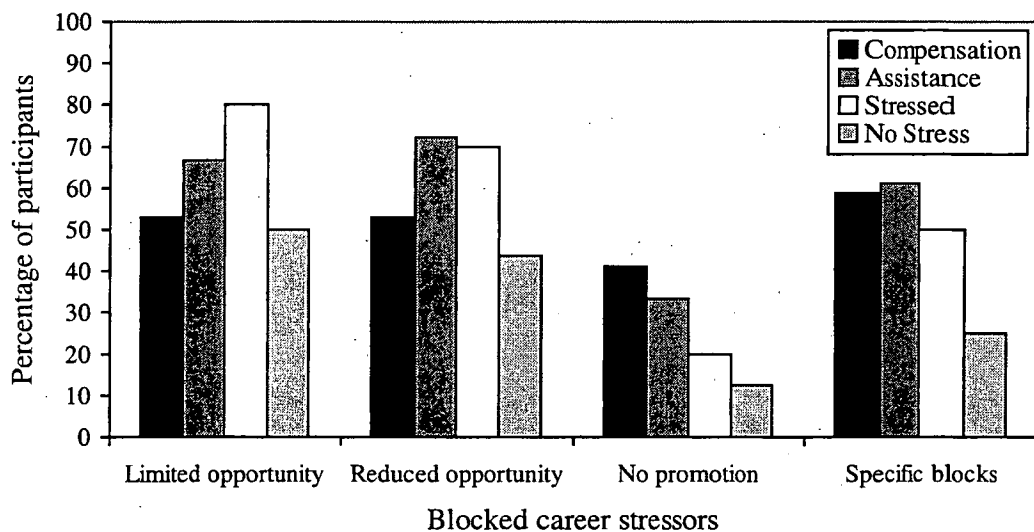


Figure 6.
The percentages of participants from each of the four groups reporting each of the blocked career stressors.

Alienation

Alienation as an occupational stressor has been characterised by feelings of isolation, a feeling that the employee did not fit in, no loyalty to the organisation, and a sense that workmates were strangers. There was a significant difference

between groups on feelings of isolation, $\chi^2(3, N = 61) = 12.43, p < .006$, with the Compensation group being more likely and the No Stress group being less likely to report this stressor. The percentages of participants from each group who reported each of these stressors are presented in Figure 7.

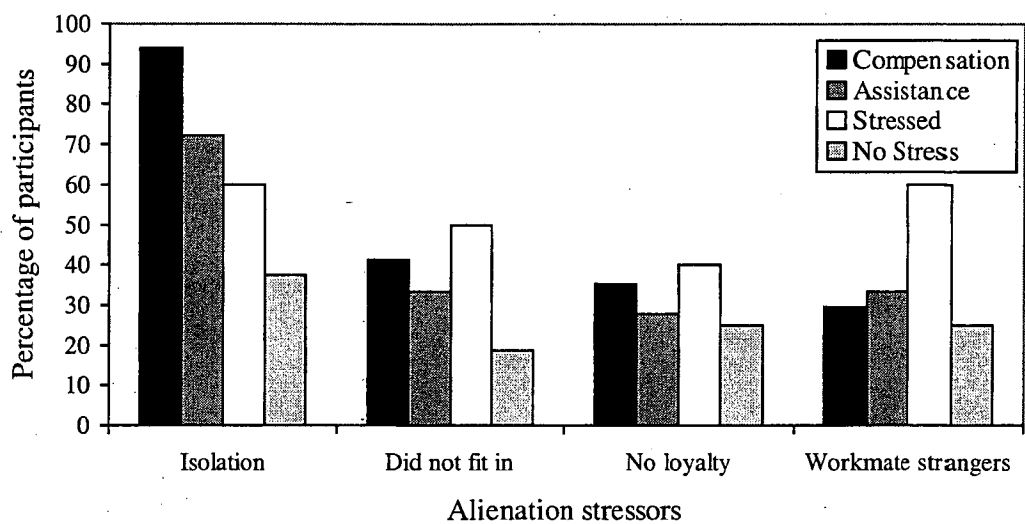


Figure 7.
The percentages of participants from each of the four groups reporting each of the alienation workplace stressors.

Work overload

Work overload as characterised by having too much to do, all work being urgent, working long hours, and the exhausting nature of work was considered. There was a significant difference between groups for the stressor of all work being urgent, $\chi^2(3, N = 61) = 8.49, p < .04$, with the No Stress group being less likely to report this stressor. In addition, a significant difference was noted for the stressor relating to the exhausting nature of work undertaken, $\chi^2(3, N = 61) = 10.48, p < .02$, with the Assistance group being more likely and the No Stress group being less

likely to report this stressor. The percentages of participants from each group reporting these stressors are presented in Figure 8.

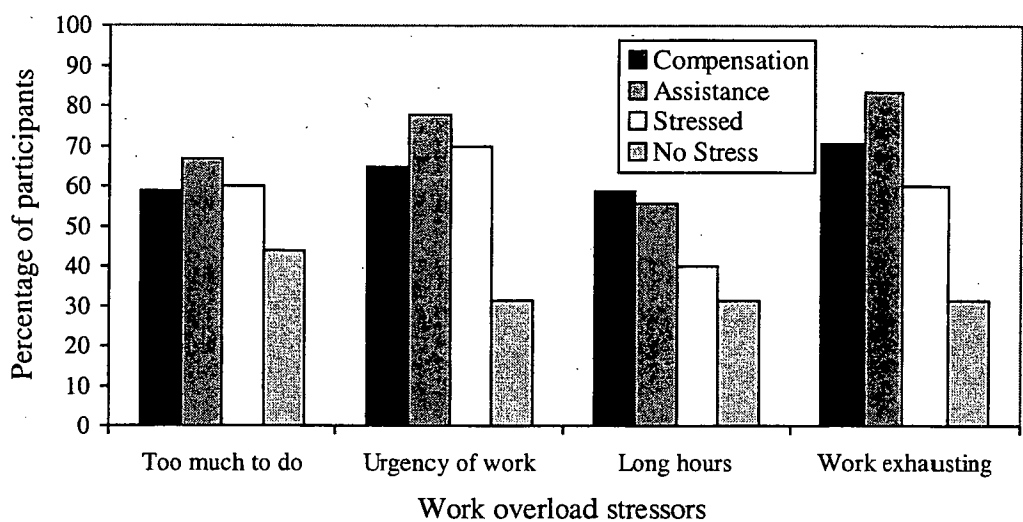


Figure 8.
The percentages of participants from each of the four groups reporting each of the work overload stressors.

Work underload

Work underload as characterised by having too little to do, being overqualified for work tasks, having to undertake dull and repetitive tasks, and being bored at work were examined. There were no significant differences between groups in relation to these stressors. The percentages of participants from each group reporting these stressors are presented in Figure 9.

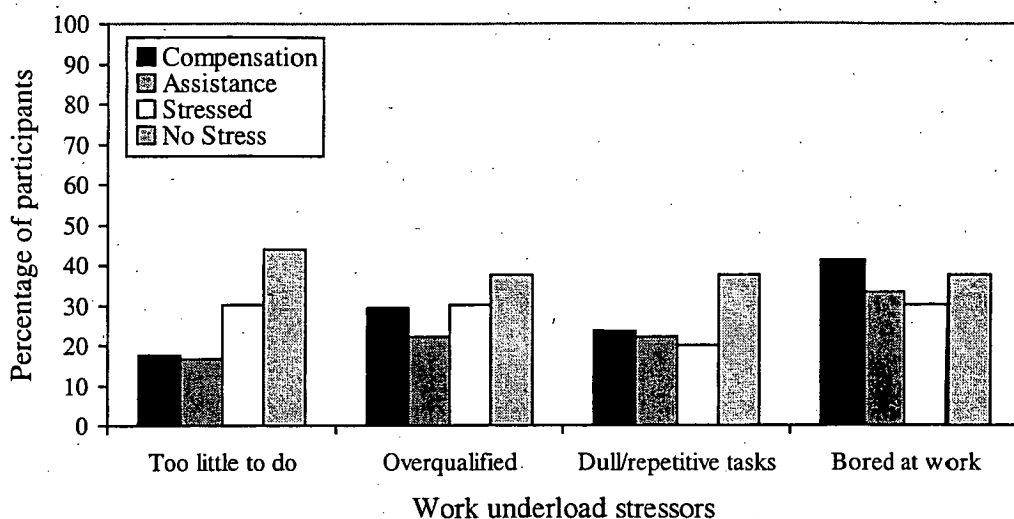


Figure 9.

The percentages of participants from each of the four groups reporting each of the work underload stressors.

Physical environment

Group differences were considered in relation to the stressful nature of the physical work environment which was characterised as having no privacy, extremes of temperature, too much noise, or problems with artificial light. There was a significant difference noted in relation to extremes of temperature, $\chi^2(3, N = 61) = 8.44, p < .04$, with the Compensation group being more likely and the No Stress group being less likely to report this stressor. No other differences were evident. The percentages of participants from each group reporting the physical environment stressors are presented in Figure 10.

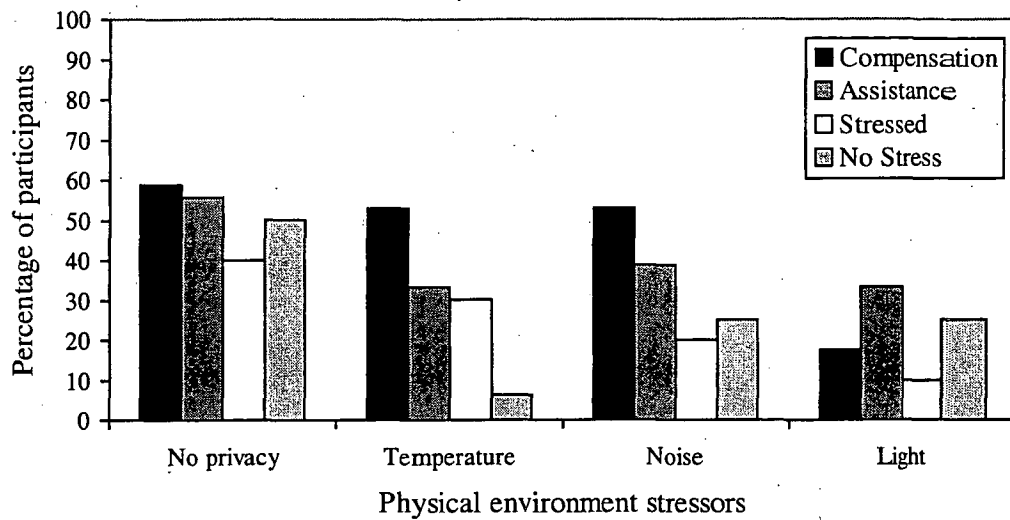


Figure 10.
The percentages of participants in each of the four groups reporting each of the physical workplace environment stressors.

Value conflict

Consideration was given to value conflict at work as an occupational stressor as characterised by a reluctance to undertake tasks with which the individual did not agree, having to compromise values at work, disapproval of colleagues' behaviours, and having to undertake or witnessing unsafe or unethical work tasks. There were no significant differences between groups. Figure 11 presents the percentages of participants from each group endorsing each of these occupational stressors.

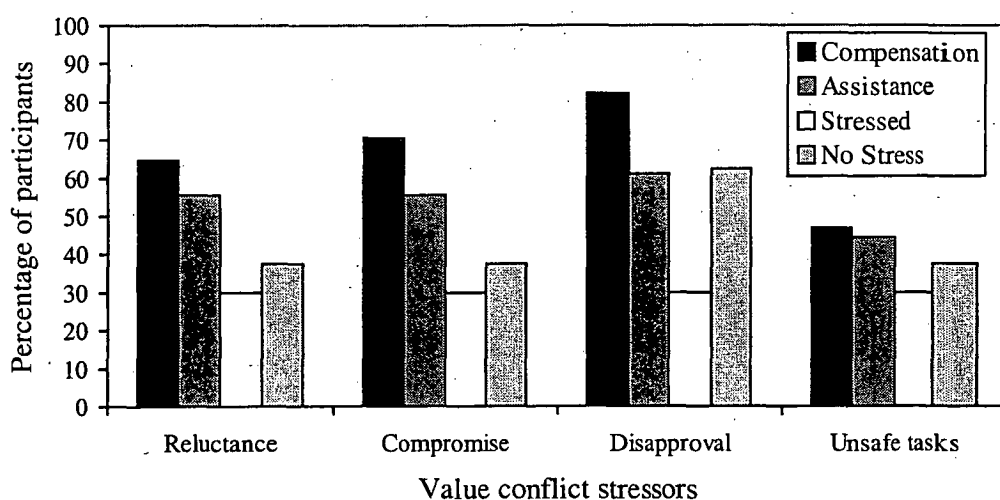


Figure 11.

The percentages of participants from each of the four groups reporting each of the value conflict stressors.

Exposure to trauma

Group comparisons were made in relation to exposure to trauma as an occupational stressor. This was characterised by feeling physically threatened at work, being physically assaulted at work, being threatened with a weapon at work, and witnessing a traumatic event at work. There was a significant between group difference for being physically assaulted at work, $\chi^2(3, N = 61) = 8.23, p < .04$, with the Compensation group being more likely and the Assistance group being less likely to report this stressor. No other differences were noted. The percentages of participants from each group reporting these stressors are presented in Figure 12.

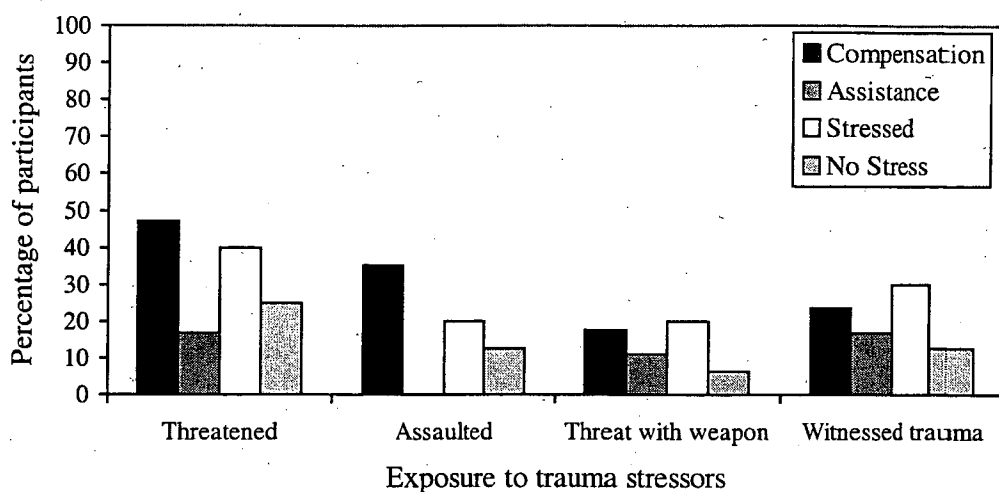


Figure 12.

The percentages of participants from each of the four groups reporting each of the exposure to trauma stressors.

Restructuring

Restructuring as characterised by significant changes in the workplace, organisation-wide changes, departmental changes, and concern about future restructuring was considered in terms of group differences. There were no significant differences between the four groups on the frequency with which the stressor of restructuring was experienced. Figure 13 presents the percentages of participants from each group reporting these stressors.

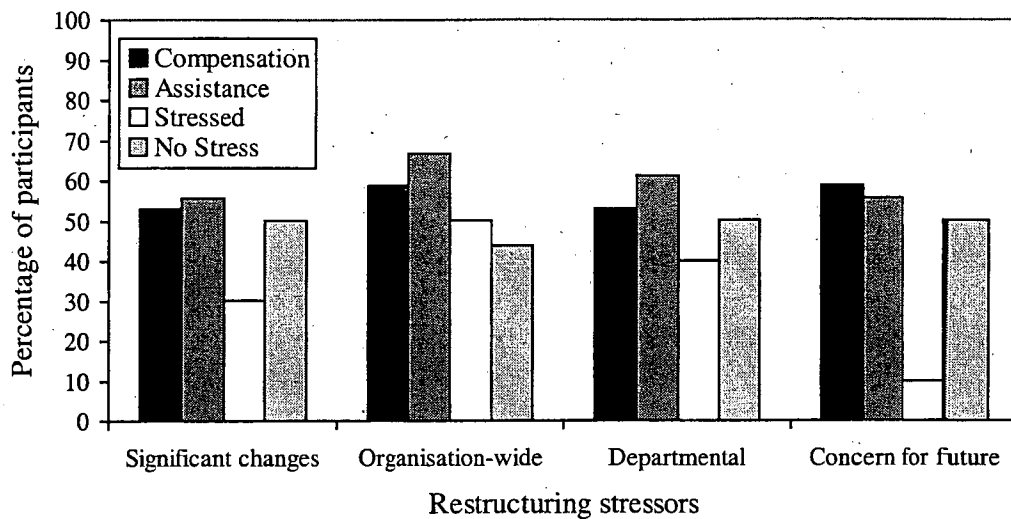


Figure 13.

The percentages of participants from each of the four groups reporting each of the restructuring stressors.

New technology

Endorsement of coping with new technology in the workplace, as characterised by the introduction of new hardware, new software, equipment upgrades, and other new technology, was compared for group differences. There were no significant differences between the four groups on the frequency with which new technology was reported as a stressor at work. Figure 14 presents the percentages of participants from each group reporting each of these stressors.

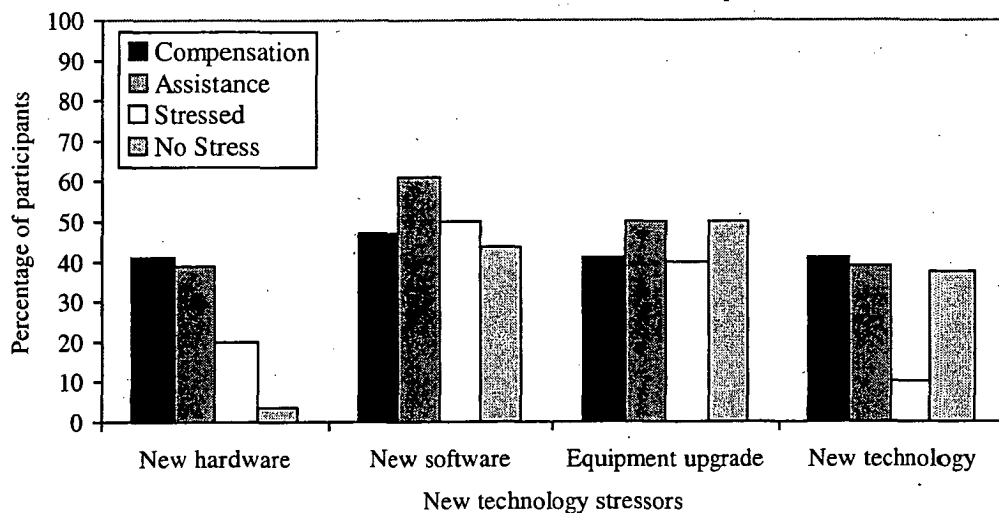


Figure 14.
The percentages of participants from each of the four groups reporting each of the new technology stressors.

Lack of training

Group comparisons were made in relation to the percentage of participants reporting lack of training as an occupational stressor. Lack of training was characterised by no job training, no specific task training, no software training, and low confidence in the ability to undertake work tasks. There were no significant differences between the four groups on the frequency with which they reported items relating to lack of training as a stressor at work. Figure 15 presents the percentages of participants from each group reporting these stressors.

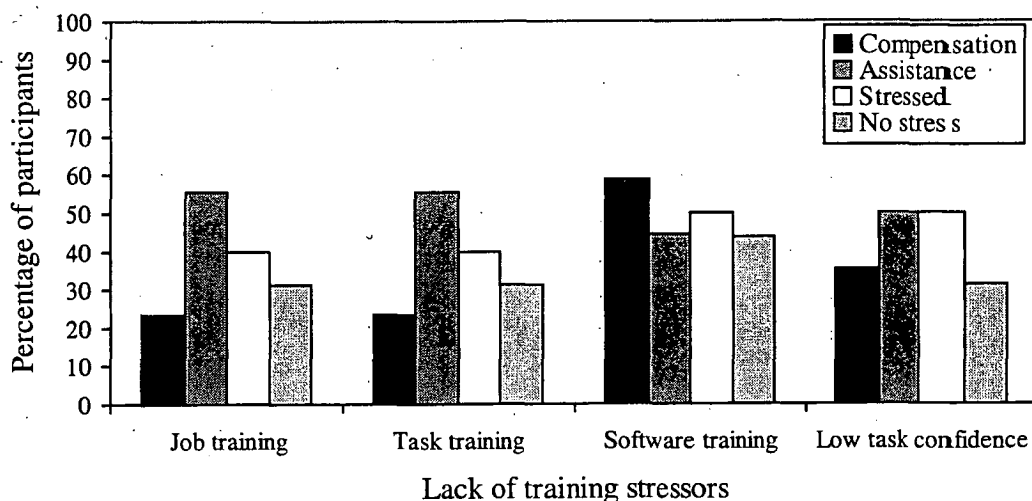


Figure 15.

The percentages of participants from each of the four groups reporting each of the lack of training stressors.

Career path stress

Career path stress was considered as an occupational stressor and was characterised by having to apply for one's own job, having to apply for other jobs, having to repeatedly attend interviews for a position, or apply for reclassification of one's position. There were no differences between groups on these variables. Figure 16 presents the percentages of participants from each of the four groups reporting the experience of these stressors.

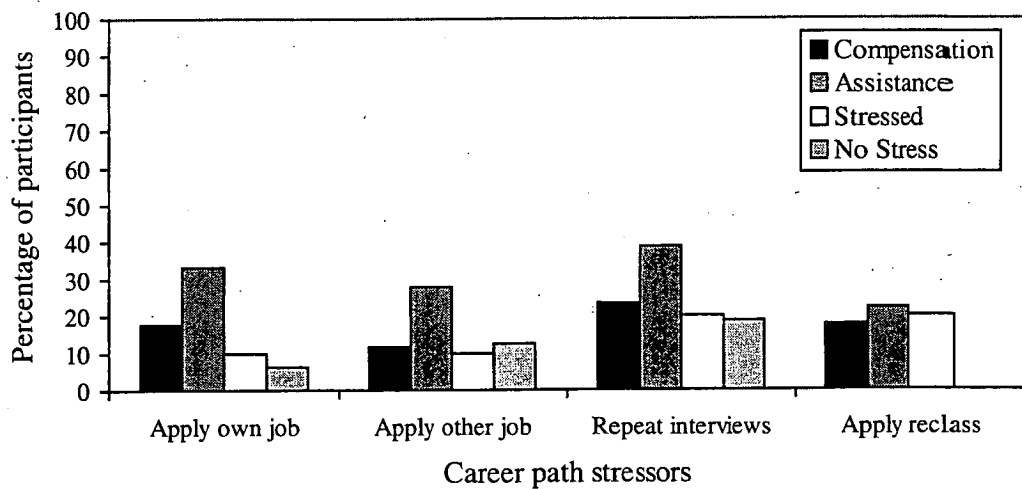


Figure 16.

The percentages of participants from each of the four groups reporting each of the career path stressors.

Physical difficulties

The physical difficulties faced by individuals that lead to occupational stress reactions were noted with particular focus on being physically unable to perform aspects of the job, having to be given special considerations because of physical limitations, resentment from others because of physical limitations, and being asked to perform work tasks that are beyond physical limitations. There were no significant differences between groups on any of these variables. Figure 17 presents the percentages of participants in each group reporting each of these stressors.

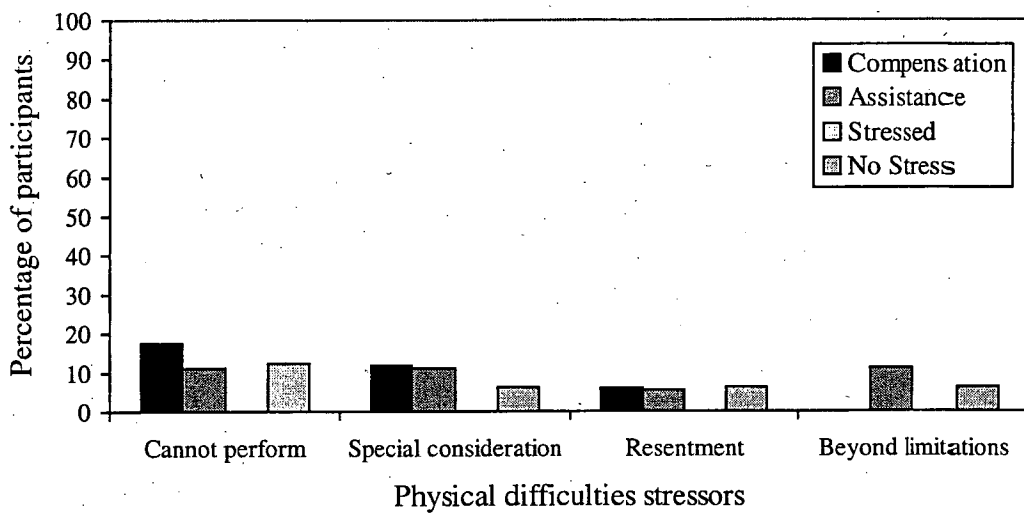


Figure 17.

The percentages of participants from each group reporting each of the physical difficulties stressors.

Lack of support

Lack of support as a source of occupational stress was considered and was characterised by lack of support from a supervisor, that the organisation does not care, that support is not available on request, and that supervisors would prefer to do nothing than support employees. There was a significant group difference for a lack of supervisor support, $\chi^2(3, N = 61) = 10.25, p < .02$, with the Compensation group being more likely than expected to report this stressor. There also was a significant between group difference for the belief that the organisation does not care, $\chi^2(3, N = 61) = 9.38, p < .03$, again with the Compensation group being overrepresented. A significant effect was apparent for the unavailability of support on request, $\chi^2(3, N = 61) = 9.63, p < .03$. In this case, the Compensation group was overrepresented and

the No Stress group was underrepresented. Figure 18 presents the percentages of participants from each group who reported these sources of stress at work.

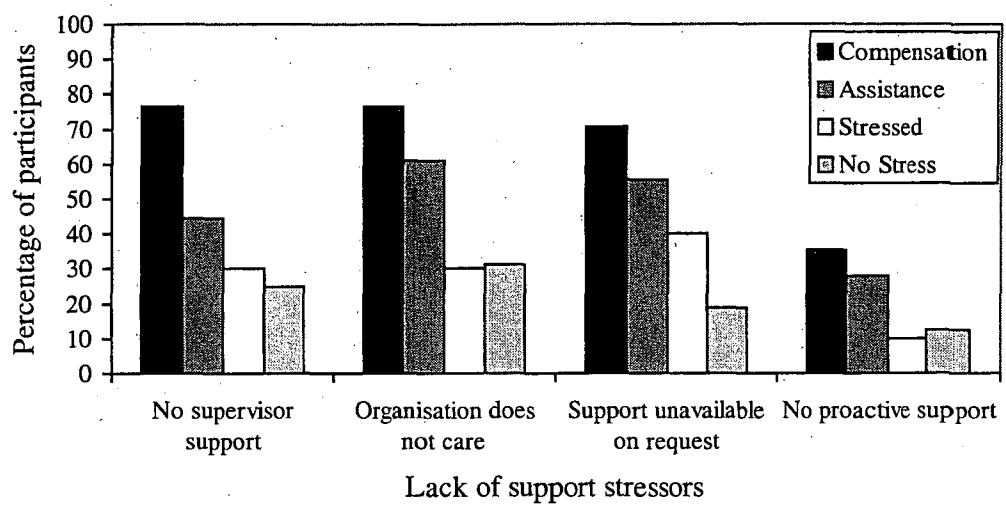


Figure 18.
The percentages of participants from each of the four group reporting each of the lack of support stressors.

Personal demands and responsibilities

Personal demands and responsibilities that exceeded capabilities were considered to be occupational stressors. These were characterised by feeling that one is not 'cut out' for the job, inability to cope with aspects of the job, dislike of too much responsibility, and a preference for a completely different type of job. There were no significant differences between groups on these variables. Figure 19 presents the percentages of participants reporting the experience of each of these work stressors.

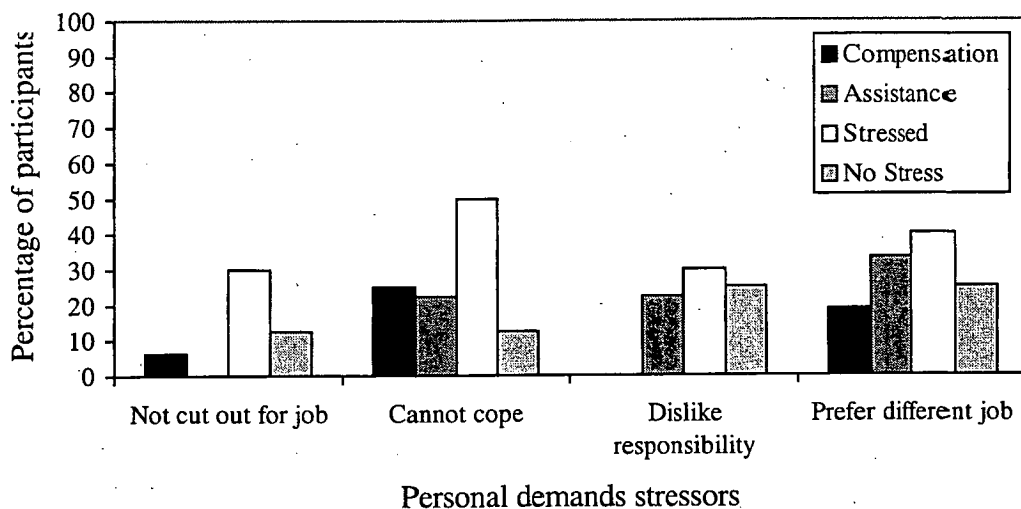


Figure 19.

The percentages of participants from each of the four group reporting each of the personal demands and responsibilities stressors.

Harassment and disciplinary action

A range of stressors associated with potential legal implications were considered and included being sexually harassed at work, being accused of sexual harassment, serious trouble at work because of mistakes made, and being falsely accused of serious mistakes. There were no between group differences on these variables. Figure 20 presents the percentage of participants reporting each of the sources of stress.

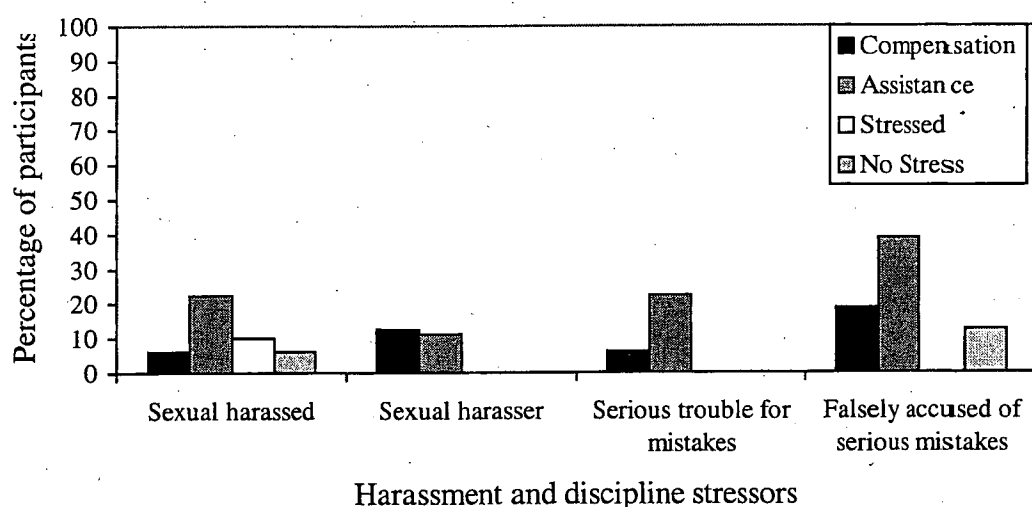


Figure 20.

The percentages of participants from each of the four groups reporting each of the harassment and disciplinary action stressors.

6.4.3 Severity of stressors

A rating of severity was made for each individual stressor and a total severity score was obtained for each category of stressor. Table 15 presents the mean severity scores and standard deviations for each of the four groups. There was a significant between group difference for the severity score for the cause and effect stressor, $F(3,57) = 4.78, p < .005$. Post hoc analyses indicated that the No Stress group scored significantly lower on this variable than the Compensation group (*Fisher LSD* = 3.07, $p < .05$) and the Assistance group (*Fisher LSD* = 3.03, $p < .05$).

A significant effect also was noted for the interpersonal conflict stressor, $F(3,57) = 4.16, p < .01$. As with the previous result, the No Stress group reported less severe problems with interpersonal conflict than did the Compensation group (*Fisher LSD* = 3.26, $p < .05$) and the Assistance group (*Fisher LSD* = 3.22, $p < .05$).

Between group differences were noted for the work overload stressor, $F(3,57) = 2.84, p < .05$. Post hoc analyses indicated that the No Stress group reported less severe problems with work overload than did the Compensation group (*Fisher LSD* = 3.50, $p < .05$), the Assistance group (*Fisher LSD* = 3.46, $p < .05$), and the Stressed group (*Fisher LSD* = 4.06, $p < .05$).

Examination of the severity of the problems with lack of support indicated significant between group differences, $F(3,57) = 3.53, p < .03$. In this case, the Compensation group scored higher than the Stressed group (*Fisher LSD* = 4.33, $p < .05$), and the No Stress group (*Fisher LSD* = 3.79, $p < .05$).

Finally, there was a significant between group difference for the harassment/disciplinary action stressor, $F(3,56) = 2.99, p < .04$. It was noted that the Assistance group scored significantly higher than the No Stress group on this variable (*Fisher LSD* = 1.65, $p < .05$). No other significant differences were noted.

Table 15. *The mean severity scores and standard deviations for each group for the categories of sources of occupational stress.*

Stressor category	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Lack of control	5.6	5.0	6.8	5.2	5.0	5.2	2.7	3.0
Information gap	5.3	4.7	6.3	4.6	4.9	4.1	3.1	3.6
Cause and effect	8.2	4.4	6.4	4.6	4.8	5.0	2.6	3.6
Interpers. conflict	7.3	4.9	8.5	6.2	6.6	3.3	3.1	2.7
Blocked career	5.3	4.5	5.7	4.3	7.1	5.9	3.2	4.2
Alienation	4.5	2.9	4.1	2.9	5.4	5.1	2.3	3.5
Work overload	7.5	6.8	6.4	4.9	7.0	4.6	2.8	2.6
Work underload	2.6	4.4	2.9	3.9	3.2	5.5	4.0	5.0
Work environm't	3.9	3.5	2.8	2.6	1.7	2.4	2.1	2.2
Value conflict	7.9	5.5	5.8	6.3	2.8	4.7	4.7	5.2
Trauma exposure	6.2	10.4	1.5	2.7	3.3	5.5	1.6	3.4
Restructuring	4.9	4.7	5.3	5.1	3.3	4.8	3.5	4.2
New technology	2.8	3.8	2.7	3.4	1.6	1.6	2.3	2.4
Lack of training	2.8	4.4	3.6	3.2	3.4	3.3	2.7	3.5
Career path stress	1.9	3.5	4.1	4.9	2.3	3.7	0.9	2.0
Phys. difficulties	0.9	2.3	0.9	2.1	0.4	1.3	0.5	1.5
Lack of support	8.2	5.7	5.2	6.3	3.3	5.2	2.4	4.0
Pers. demands	1.6	3.0	2.5	3.0	4.9	5.2	1.9	4.0
Harass/discipline	1.6	3.2	2.7	2.8	0.8	1.7	0.3	0.9

6.5 Discussion

A group of workplace stressors was reported with more frequency by the workers' compensation group than other groups. In particular, of the cause and effect stressors, the compensation group was more likely to report that they experienced little or no recognition for their work, that the members of the group were influenced by workplace politics, and that they were expected to reach unachievable goals.

Insufficient recognition and reward has been identified as one of five major work stressors by Australian university staff (Gillespie et al., 2001). Low reward has been associated with short term and long term sick leave and greater frequency of sick leave (Peter & Siegrist, 1997), as well as an increased risk of burnout (Bennett, Ross & Sunderland, 1996; Van Der Hulst, 2001), and factors such as work-home conflict (Van Der Hulst, 2001). It is generally accepted that an imbalance between effort expended and reward received (high effort-low reward) is stressful (Aust et al., 1997) and it has been demonstrated that effort-reward fairness leads to better performance and greater satisfaction with moderate job demands (Janssen, 2001).

A link between effort-reward imbalance and the development of physical symptoms has been identified (Peter, Geissler et al., 1998). Indeed, there is a substantial body of literature that links effort-reward imbalance with increased risk for cardiovascular disease, coronary heart disease and hypertension (Bosma et al., 1998; Peter, 1995; Peter & Siegrist, 1997, 1999; Siegrist, 1995, 1996). It would appear that effort-reward imbalance is a stressful experience and it is the stress

response that develops that increases the risk of disease (Peter, Alfredsson et al., 1998). It also has been suggested that effort-reward imbalance mediates the relationship between an occupational stressor such as shift-work and the increased risk of cardiovascular disease (Peter et al., 1999). Effort-reward imbalance also has been related to the development of psychological and workplace responses such as mental distress and job dissatisfaction (Calnan et al., 2000).

In relation to physical symptoms, it has been suggested that it is not effort-reward imbalance that increases the risk of metabolic and haemostatic disorders, but overcommitment (Vrijkotte et al., 1999). However, effort-reward imbalance was determined to be related to depression and that this relationship was separate from the association between overcommitment and depression (Tsutsumi, Kayaba et al., 2001). Others have suggested that the relationship between effort-reward imbalance and the development of psychological and physical symptoms is intensified in overcommitted people (de Jonge, Bosma et al., 2000).

Lack of reward would make it difficult for the Compensation group to find a reason not to lodge a workers' compensation claim. The perception of the intrinsic value of a job would be low if reward was absent and the Compensation group may then believe that they are risking little by lodging a claim. In contrast, despite deterioration in psychological functioning that was sufficiently severe to warrant seeking professional assistance, the Assistance group may hold the view that the reward they receive from their jobs makes lodging a workers' compensation claim a riskier proposition if the outcome would be that they would have to forfeit their position.

As mentioned, the Compensation group reported more problems with workplace politics than did other groups. It would be incorrect to say that all political manoeuvres in the workplace were negative. Indeed, a range of sanctioned political tactics have been identified such as use of expertise, super-ordinate goals, networking, coalition building, persuasion and image building (Zani & O'Neill, 2001). It has been established that a favourable attitude to workplace politics can enhance the use of sanctioned political tactics such as networking (Forret & Dougherty, 2001).

However, it is also the case that non-sanctioned political tactics can be in operation within a workplace and these types of tactics can result in adverse consequences for the worker. Non-sanctioned political tactics have been identified to include the use of intimidation and innuendo, the use of manipulation, co-optation, control of information, use of surrogates, the use of organisational placement, and blaming or attacking others (Zani & O'Neill, 2001).

It is evident that these would be considered to be inappropriate tactics that would result in adverse psychological and occupational effects. If an individual believed themselves to be a target for the use of non-sanctioned political tactics, then it may be that the normal constraints on displays of perceived disloyalty, such as lodging a workers' compensation claim, would be removed. It would be much easier to disregard the negative consequences for the organisation of lodging a workers' compensation claim if the organisation or people who have been identified as representing the organisation had disregarded their duty of care and used

manipulation or other under-handed tactics to achieve either personal or organisational goals.

As mentioned, the Compensation group was more likely than the other groups to report that they were expected to have to reach unachievable goals. Having clear and accepted goals has been identified as a component of an appropriate workplace climate, and failure to have these types of goals leads to the development of work-related stress responses (e.g., Elovainio, Kivimaeki, Eccles & Sinervo, 2002).

There are factors that impact on the perception of one's ability to attain goals at work. An example of this is leadership style. One study reported an intervention programme aimed at improving the poor leadership of supervisors. This led to improvement in the perception of employees' ability to attain career goals and this, in turn, reduced stress levels (Beaton, Johnson, Infield, Ollis & Bond, 2001).

It is evident that the appropriateness of goals must be determined with regard to other factors. For example, the development of performance goals needs to be done in the context of the workload demands placed on employees (Glaser, Tatum, Nebeker, Sorenson & Aiello, 1999).

A burnout intervention programme was described where the objective was to alter the perceived inequity in the association with the organisation and with the client population by altering the extent to which professionals' goals and expectations and the nature of the work situation were incompatible (van Dierendonck, Schaufeli & Buunk, 1998). It was interesting to note that the improvement following intervention was enhanced by the use of social resources by the participant.

Repeatedly being unable to achieve goals in the workplace would mean that the reinforcing factors such as satisfaction with a job well done would be removed. In the face of the removal of reinforcement, it would be difficult for an employee to persist. This factor may contribute to the decision to lodge a workers' compensation claim. Of course, it may also be the case that perceiving work goals as unachievable could reduce the probability that the individual would generate alternative problem-solving strategies, resulting in an increase in the likelihood of adopting the workers' compensation pathway.

When considering alienation as a workplace stressor, the Compensation group was more likely to report feelings of isolation. It has been suggested that work alienation cannot be separated from work stress (Frone, 1999). It was the case among firefighters that alienation from others, feelings of insecurity and a perception of lack of personal control in the workplace were related to elevated depression and posttraumatic stress symptoms following exposure to a traumatic work-related stressor (Regehr, Hill & Glancy, 2000). The effect of alienation on negative outcomes seems not to be reduced by potentially buffering variables such as emotional support (Cheuk & Wong, 1998).

With regard to feelings of isolation, these have been directly related to the development of occupational stress responses among US physicians (Linzer et al., 2002), soldiers undertaking peacekeeping activities (Bartone, Adler & Vaitkus, 1998), teachers (Dussault, Deaudelin, Royer & Loiselle, 1999), oncology nurses (Montgomery, 1999), astronauts (Kozerenko, Gushin, Sled, Efimov & Pystinnikova, 1999; Manzey & Lorenz, 1999), teleworkers who undertake decentralised

computer-mediated work activities (Konradt, Schmook, Wilm & Hertel, 2000), and secular Roman Catholic clergy (Virginia, 1998). There also has been a demonstrated link between the combination of social isolation, interpersonal conflict and job stress and increased risk of coronary heart disease (Smith & Ruiz, 2002). In addition, there is evidence that social isolation at work may be particularly problematic for women (Jena, 1999).

It also has been demonstrated that the longer time spent in high isolation, stressful jobs (denoted by a lack of support) results in exacerbation of strain (Dollard & Winefield, 1998). In fact, the effects of high demands and low control on socially isolated workers has been considered in an amendment to the demand-control model of job strain by adding low social support or isolation as a component in this model (van der Doef & Maes, 1999).

There is little doubt that feelings of isolation from colleagues would do little to strengthen any resolve to persevere in the face of stress at work. Without the connection with colleagues and the subsequent concern about their wellbeing in the absence of the worker, a decision to lodge a workers' compensation claim may be more easily made.

With regard to aspects of the physical environment, the Compensation group was more likely than expected to report extremes of temperature in their workplaces. The relationship between workplace temperature and both physical and psychological wellbeing has been reported elsewhere (Donald & Sui, 2001; Lindgren et al., 2000) with an additional suggestion that organisational commitment may moderate the relationship between temperature as a stressor and the

development of a negative psychological response (Donald & Siu, 2001). Although, in itself, poor temperature control in the workplace would be unlikely to trigger a stress response and a subsequent workers' compensation claim, the environmental conditions may add to the overall adverse conditions in the workplace, both social and environmental, decreasing in number the reasons for not lodging a workers' compensation claim.

Examination of the experience of traumatic events in the workplace, the compensation group were more likely to report being physically assaulted at work. Violence in the workplace is considered to be a serious violation of employee rights (e.g., Cole et al., 1997), and results in significant negative effects (Erdos & Hughes, 2001). In fact, perceived risk of assault in the workplace was associated with the intention of nurses to leave their jobs (Ito, Eisen, Sederer, Yamada & Tachimori, 2001).

The experience of a physical assault may account for the acute nature of onset of the stress response reported by the Compensation group (see Chapter 4). In most cases, there would be no dispute about the compensable nature of a physical attack at work and this may mean that people would be more likely to apply for compensation in these cases. Indeed, the invisible nature of occupational stress is problematic. The overt nature of a physical assault may make it acceptable for a workers' compensation claim to be lodged.

Finally, the Compensation group were more likely to report a lack of supervisor support, that the organisation did not care about them, and that support was unavailable upon request. In the face of other stressors, the additional lack of

supervisor support may tip the balance in favour of a workers' compensation claim. It would be difficult to maintain loyalty in the face of rejection. It has been reported that loyalty to the organisation is greater in more supportive work environments and more loyalty has been associated with less burnout among employees (MacDermid, Hertzog, Kensinger & Zipp, 2001). Alternatively, lack of support may decrease the likelihood of stressed employees choosing to access or being able to access alternative means of dealing with the work situation, resulting in the employee having to lodge a workers' compensation claim to achieve some measure of resolution (Dollard et al., 1999).

There is little doubt that poor social or supervisory support in the work environment is detrimental to employee wellbeing and psychological functioning (e.g., Evans & Steptoe, 2002; Harris & Rose, 2002; Linzer et al., 2002) and job related factors such as retention (Brown et al., 2002) and productivity (Baruch-Feldman et al., 2002) although it has been suggested that the cumulative effects of poor work-related social support are not related to mortality (Amick et al., 2002). These effects of low supervisory support have been determined to be both direct and indirect by mediating the relationship between workplace stressor and psychological response (Baruch-Feldman, et al., 2002; Kalliath & Beck, 2001) although others have recognised the direct effects but discounted the indirect or moderating effects (Cheuk & Wong, 1998; Dobрева-Martinova et al., 2002). Further, it has been reported that rather than merely lack of support, social undermining in the workplace may occur resulting in negative outcomes even if support from another source is available (Duffy, Ganster & Pagon, 2002). In fact, it has been suggested that to

understand occupational stress and how to alleviate its effects, it will be necessary to further consider mediating or moderating variables such as social support (Lee & Lee, 2001) to determine whether good social support has a protective effect (e.g., Bueltmann et al., 2002).

Further to these results, it was evident that a small number of stressors were reported with more frequency by the Assistance group. In particular, the Assistance group were more likely to report conflict with colleagues and that all of their work is exhausting in nature.

It is evident from the literature that interpersonal conflict at work is one of the most frequently reported major stressors among multiple occupational group samples (e.g., Haines et al., 1996) and single occupational group samples such as senior house officers in hospice care (Lloyd, 2002), high school volleyball officials (Stewart & Ellery, 1998), basketball referees (Rainey, 1999), newly qualified doctors (Paice, Rutter, Wetherell, Winder & McManus, 2002), university academics and sales associates (Narayanan et al., 1999).

Of course, there may be other factors that increase the likelihood of exposure to interpersonal conflict. For example, among New York City traffic enforcement agents, high levels of trait anger were associated with increased frequency of conflict situations along with greater intensity of the angry interaction and burnout symptoms (Brondolo et al., 1998). Employees who scored highly on neuroticism were more likely than those with low scores to report having been involved in an interpersonal conflict at work (Gunthert, Cohen & Armeli, 1999).

It also is apparent that interpersonal conflict at work can lead to negative psychological (Duffy et al., 2002) and physical consequences (Smith & Ruiz, 2002). The development of psychological distress was reported to be a result of exposure to workplace interpersonal conflicts (Buelmann et al., 2002). In addition, job-related consequences have been reported such as increased job withdrawal (Cortina et al., 2001).

It is interesting that interpersonal conflict as a workplace stressor was reported with more frequency by the Assistance group. When interpersonal conflict is the factor that triggers a work-related stress response, then barriers to the lodging of a workers' compensation claim may be evident despite significant symptomatology being experienced. Firstly, the process of defending a workers' compensation claim may be more difficult than would be the case with a more objectively obvious workplace stressor such as work overload or an accident at work resulting in psychological injury. There would be issues about responsibility and cause and effect that would create problems if the claim was disputed. Secondly, the decision to lodge a workers' compensation claim for psychological injury as a consequence of interpersonal conflict may be made more difficult by the possibility that the interpersonal conflict may be exacerbated by the lodging of the claim (e.g., the claimant being perceived as weak or vindictive). Finally, the decision to lodge a workers' compensation claim may be made easier if support for the decision is perceived to exist within the workplace. An interpersonal conflict may mean that this type of support would not be available or the lack of support by some would negate the support of others.

Evidence in support of these views comes from literature that has indicated that reporting sexual harassment in the workplace often does not improve and may even worsen job, psychological and health-related outcomes because of a poor organisational response characterised by poor organisational remedies, minimisation of the problem by the organisation and retaliation (Bergman, Langhout, Palmieri, Cortina & Fitzgerald, 2002).

Finally, despite everyone reporting a higher than desirable workload, it was the Assistance group who reported feeling exhausted because of their workload. It is evident that high workload has been reported to lead to adverse effects such as psychological dysfunction and physical strain (Greenglass, Burke & Riksenbaum, 2001; Seppaelae, 2001) and changes in job satisfaction (Tummers, Landeweerd & van Merode, 2002a). In fact, both subjective and objective workload demands interacted with perceptions of low personal control to predict the cumulative health care costs of workers over a five year period (Ganster, Fox, & Dwyer, 2001). Indeed, it may be the frustration aspect of high workloads that predict psychological stress (Sharit et al., 1998) with frustration being related to a lack of control.

Of relevance to the current results, increased psychological, physical and emotional demands at work have been related to feelings of fatigue (Bueltmann et al., 2002). Increased workload has been demonstrated to impact on the spillover of fatigue from the workplace to leisure time (Rydstedt & Johansson, 1998). In keeping with the view that frustration and control are linked with workload perceptions, it has been reported that the severity of daily hassles predicted feelings of fatigue and the subjective view that workload was high (Zohar, 1999).

In summary, there are a number of workplace experiences that are related to the decision to lodge a workers' compensation claim as evidenced by these stressors being more frequently experienced by the Compensation group. In particular, receiving little recognition for work, the influence of workplace politics, having to reach unachievable goals, feeling isolated from others at work, aversive environmental conditions, violence in the workplace, and lack of supervisor support were identified as the factors that distinguished the Compensation group from others. The nature of many of these stressors would remove the barriers that may act to prevent a claim from being lodged.

CHAPTER 7

**PSYCHOPHYSIOLOGICAL AND PSYCHOLOGICAL
RESPONSES TO WORKPLACE STRESSORS**

7.1 Introduction

It is not enough to consider the nature of the occupational stressors to learn about the development of occupational stress. It is imperative that the way in which an individual reacts to the occupational stressors at the time of the experience be examined. This is recognised by Berry's model by the incorporation of the psychophysiological reaction as an important component of the stress response. It also is suggested that it is not only the psychophysiological response to the event that is important to determine, but consideration must be given to the psychological response as there may be a lack of synchrony between the two responses in reaction to stressor challenges.

7.1.1 Stress measurement

In reviewing the literature, it has been identified that researchers measuring stress have relied heavily on the use of self-report data (Bruning & Frew, 1987; Burke, 1987; Fried, Rowland & Ferris, 1984). However, the stress process is a complex, whole body response, involving psychophysiological, cognitive, emotional and behavioural changes (Fleming & Baum, 1987; Steptoe, 1991). Further, objective indicators of occupational stress are necessary since the perception of the nature of stress is dependent upon interpretation by the individual (Balick & Herd, 1987; Cox & Ferguson, 1994), and individuals may not immediately recognise alterations in their psychophysiological arousal and rate their psychological response accordingly (Brain, Haines & Williams, 1998, 2002; Haines et al., 1995). Thus, it has been suggested that a comprehensive investigation of the stress process in

individuals would involve both psychological and psychophysiological measures (Balick & Herd, 1987; Burke, 1987; Fleming & Baum, 1987; Ganster, Mayes, Sime & Tharp, 1982; O'Keeffe & Baum, 1990).

Psychophysiological markers provide a more objective measurement of stress (Steptoe, 1991). Unlike self-report measures of stress, psychophysiological measures, to the same extent, cannot be influenced by unintentional or intentional subject bias (Lester, Nebel & Baum, 1994). The exclusion of objective measures in the investigation of occupational stress has lead to confounded data and may contribute to spurious results (Fried et al., 1984; Steptoe, 1991). However, self-report measures have also provided information that is not easily accessed by other means (Lester et al., 1994). Again, a comprehensive investigation of the stress process should include both psychological and psychophysiological indices.

Psychophysiological indices are employed to give a more reliable indication of the nature and severity of occupational stress (Balick & Herd, 1987). Psychophysiological measures can be used to identify individuals more susceptible to an adverse physical effect (Balick & Herd, 1987). Measures of blood pressure, heart rate and biochemical factors have resulted in a recognition of a relationship between physical and psychological stress responses (Balick & Herd, 1987).

The experience of stress results in a number of physiological changes. These changes involve various organs and systems of the body, thus providing a variety of means of accessing information about the nature of stress. In occupational research, investigators have utilised oral temperature (Pokorny, Blom & Opmeer, 1988), blood pressure (Bohlin, Eliasson, Hjemdahl, Klein & Frankenhaeuser, 1986;

Frankenhaeuser et al., 1989; Goldstein, Jamner & Shapiro, 1992; Hutt & Weidner, 1993; Lundberg, Graqvist, Hansson, Magnusson & Wallin, 1989; Pincomb, Lovallo, Passey, Brackett & Wilson, 1987; Sausen, Lovallo, Pincomb & Wilson, 1992; Siegrist & Klein, 1990), heart rate (Douglas, Blanks, Crowther & Scott, 1988; Frankenhaeuser et al., 1989; Goldstein et al., 1992; Kuorinka & Korhonen, 1981; Lundberg et al., 1989; Payne & Rick, 1986; Pincomb et al., 1987; Sausen et al., 1992; Siegrist & Klein, 1990; Smith, 1988), and muscle tension (Gomer, Silverstein, Berg & Lassiter, 1987) to determine effects of exposure to workplace stressors.

A number of studies have included stress-related hormones as measures of stress in individuals. These studies include both acute stress and chronic experiences of stress. For example, in a group of assembly workers, adrenalin levels were measured during work and home activities (Melin, Lundberg, Soederlund, & Granqvist, 1999). Adrenalin levels were significantly higher during work compared to work-free days. Similarly, salivary cortisol level was related to both objectively measured and subjectively assessed workload in air traffic controllers (Zeier, Brauchli & Joller-Jemelka, 1996).

Stress-related hormones have also been adopted as indicators in longitudinal studies of occupational stress. Anderzen and Arnetz (1999) conducted an investigation of psychological adjustment in a group of workers who had relocated overseas. Blood levels of stress-related hormones were measured before relocation, and after one and two years abroad. Higher circulating levels of the targeted hormones were found in the relocated workers compared to a group of home-based

controls, and the results were interpreted as evidence of negative adjustment. Similarly, an investigation of police inspectors during reorganisation and at three-year follow-up variables such as prolactin and cortisol levels. In participants who experienced favourable changes in employment states and psychosocial work environment, an improvement in physiological functioning was also observed (Grossi, Theorell, Jurisoo & Setterlind, 1999).

Not all results have been consistent. For example, a study of employed men and women, measuring adrenalin and cortisol over one rest day and two working days demonstrated higher adrenalin levels on working days than the rest day in men, but not in women (Pollard, Ungpakorn, Harrison & Parkes, 1996). As the authors indicated, this supports Frankenhaeuser's (1991) model addressing adrenalin variation in men. However, there was no variation in cortisol level between work days and nonwork days (Pollard et al., 1996) indicating either no additional stress being experienced on work days or no resolution of stress levels with rest.

However, these types of studies often use invasive techniques. Similar information about level of reaction to workplace stressor can be obtained using peripheral measures of psychophysiological arousal. A number of studies have adopted this alternative approach.

7.1.2 Laboratory studies

Studies of the psychophysiology of occupational stress have included laboratory, field and treatment outcomes involving workers employed in particularly stressful occupations. Some of the occupations investigated include bus drivers

(Evans & Carrere, 1991), paramedics (Jamner et al., 1991), and fire-fighters (Lim et al., 1987). Psychophysiological arousal has been positively associated with subjective and objective levels of stress.

Laboratory studies have demonstrated an increase in workers' psychophysiological arousal while under psychological strain (Balick & Herd, 1987). Increased heart rate and blood pressure during performance of cognitive decision making, and mental arithmetic tasks have been reported (e.g., Sharpley & McLean, 1991). Laboratory studies simulating typical work tasks have demonstrated increased psychophysiological arousal (Schaubroek & Ganster, 1993). For example, take off and landing tasks in cockpit simulators (Tattersall & Hockey, 1995) have been used to monitor psychophysiological changes in pilots.

However, not all results from psychophysiological studies are clear. For example heart rate and muscle activity were measured in a group of adults performing a VDU task under stressful and non-stressful conditions. Although an increase in heart rate occurred during the stress condition, it was only a small increase in muscle activity that occurred. The authors proposed that there may be other factors in operation influencing the response or there may be an individual difference in proneness to muscle tension among participants (Ekberg et al., 1995). Studies of heart rate variability have similarly demonstrated individual differences (Kristal-Boneh, Raifel, Froom & Ribak, 1995).

Nevertheless, it appears that the results of laboratory studies can be generalised to real life events. Examining the association between laboratory and real life reactivity, a group of professional train and professional car drivers was

considered. Results supported each individual's tendency to a specific form of cardiovascular responsivity. It was evident that heart rate and blood pressure in naturally occurring, emotionally neutral situations were predicted by arousal responses to physical challenges generated in the laboratory. Further, laboratory-based psychologically stressful events resulted in blood pressure changes that were similar in magnitude to the changes noted in response to unexpected, stressful, real-life events (Kozena, Frantik & Nosek, 1999).

7.1.3 Field studies

A more common approach to the examination of arousal changes at work has been through the use of field studies. Longitudinal studies have typically demonstrated increased arousal during a stressful period compared to a non-stressful period in a work schedule. Increased psychophysiological arousal has been demonstrated in a sample of teachers at the end of term, compared with the beginning (Travers & Cooper, 1994). Medical students have also demonstrated increased arousal during exam periods (Lovallo, Pincomb, Edwards, Brackett & Wilson, 1986).

Similarly, to investigate the impact of new technologies on hormone levels and subjective strain, hormone levels were measured prior to, and twelve months after the installation of the new technologies. Results demonstrated that increased levels of catecholamines accompanied the introduction of the new technologies. Further, results indicated that levels remained high one year after the implementation.

Similar values were found for work and rest days (Korunka, Heumer, Litschauer, Karetta & Kafka-Lutzow, 1996).

The most commonly used approach to the examination of arousal changes has been to compare arousal on workdays to non-work or rest days. General cardiovascular response in reaction to working has been demonstrated by a number of investigators (e.g., Frankenhaeuser et al., 1989; Gellman et al., 1990; Harshfield, Pickering, Blank & Laragh, 1986; Lundberg et al., 1989, 1999; Steptoe, Roy & Evans, 1996). However, other research has indicated increased cardiovascular reactivity in response to specific work events or specific aspects of the work environment (Bohlin et al., 1986; Dolan, Sherwood & Light, 1992; Douglas et al., 1988; Frew & Bruning, 1987; Goldstein et al., 1992; Sausen et al., 1992; Schnall et al., 1990; Smith, 1988).

Significant differences in psychophysiological arousal during work and non-work days have been demonstrated. Occupations examined have included assembly line workers (Melin et al., 1999), fire-fighters (Lim et al., 1987), industry workers (Johansson & Aronsson, 1984), air traffic controllers, (Melton, 1977), and urban bus drivers (Goldstein et al., 1992; Jamner et al., 1991). For example, blood pressure and heart rate were consistently lower on a "good" day compared with a "bad" or "normal" day (Lundberg et al., 1989). Higher workday blood pressure compared with nonwork day blood pressure has been demonstrated in employees in general (Harshfield, Pickering, Kleinert, Blank & Laragh, 1982; Theorell, Knox, Svensson & Waller, 1985), nurses (Goldstein, Shapiro, Chicz-DeMet & Guthrie, 1999), white collar workers (Frankenhaeuser et al., 1989) and male fire fighters (Steptoe et al.,

1996). Cardiovascular and catecholamine measures were elevated across the workday compared with non-work days in a group of long-distance drivers (Raggatt & Morrissey, 1997). Results of self-reported stress and anxiety also demonstrated the same pattern.

Other results have been less clear (e.g., Kennedy, Horan, Sprague, Padgett & Shriver, 1983; Pickering, Harshfield, Kleinert, Blank & Laragh, 1982; McLaren, 1997) and reflected the interpretation of arousal made by the individual (e.g., excitement vs. distress). Further, a better indication of differences in arousal has been given by comparing specific events, typically stressful incidences at work compared with events in the non-work day (Kozena et al., 1995; McLaren, 1997). Studies that have demonstrated increased arousal for stressful work events have focused on British prison officers (Smith, 1988), ships' pilots (Cook & Cashman, 1982), industrial managers (Hennigan & Wortham, 1975), and engine drivers (Kozena et al., 1995).

Yet not all results have been clear. A study was conducted of fire fighters on work days and non-work days (Steptoe et al., 1996). As expected, systolic blood pressure was elevated on workdays in comparison with non-workdays. However, diastolic blood pressure at work was elevated only for non-smokers. In addition, although workdays were associated with greater physical activity immediately prior to the blood pressure measurement, this had no effect on systolic blood pressure in the work and non-work environments. Further, when negative mood was evident, systolic blood pressure was elevated at work and outside of work. Unexpectedly, stressful or challenging events at work did not affect blood pressure. It was

concluded that physical activity and negative mood states impacted on systolic blood pressure at work (Steptoe et al., 1996).

The designs of few studies have distinguished individuals based on their reported levels of stress. One study of female university students distinguished between self-reported chronically stressed and non-stressed subjects. Overall, the reduced heart rate variability that was evident during university-related activities was indicative of elevated mental load. It also was noted that greater arousal was related to study activities in comparison with leisure activities. Chronically stressed subjects demonstrated higher heart rate, particularly at university (Myrtek, Weber, Bruegner & Mueller, 1996).

Some occupations have been identified as more stressful on the basis of individual's psychophysiological responses. For example, a review of the literature identified that professional drivers had an elevated risk of cardiac problems, over and above the risk associated with known risk factors (Belkic et al., 1994). Psychophysiological arousal has been used to distinguish the degree of stress experienced by different members of a work group. For example, surgeons have experienced a greater increase in arousal than anaesthetists while performing the same operation (Payne & Rick, 1986). Psychophysiological arousal differences have also been observed between train drivers on different routes (Myrtek et al., 1994). Other research has demonstrated an association between group cohesion and psychophysiological arousal (Kalimo, Harju, Leskinen & Nykyri, 1992), with members of a fragmented management group demonstrating higher strain and higher arousal than a cohesive group.

Psychophysiological indicators have also been adopted to investigate causal factors in the development of some medical problems at work. For example, it has been demonstrated that a combination of poor job satisfaction, strong psychophysiological arousal, and slow resolution of arousal response have a greater impact on musculoskeletal disorders as a consequence of simplistic, repetitive work than do factors such as posture problems or lifting of heavy objects. It has been demonstrated that increased mental load can create muscle tension and that a high risk of musculoskeletal conditions is found in individuals who find it difficult to relax and have a generally high level of psychophysiological arousal, even outside of work (Melin & Lundberg, 1997).

Psychophysiological indices have been adopted to investigate characteristics of the work environment. For example, psychophysiological measures have been adopted to assess the workload of pilots (e.g., Jorna, 1993; Roscoe, 1993; Wilson, 1993). In addition, flight crews were investigated during two consecutive night flights and a short layover. Psychophysiological differences were observed across stages of the journey and interpreted in terms of fatigue (Samel et al., 1997). Other investigations concerned with individual's responses to work conditions include psychophysiological response to neutral or hot conditions in fire fighting exercises (Smith, Petruzzello, Kramer & Misner, 1997), and college student's responses to noise exposure and mental tasks (Taffalla & Evans, 1997).

Psychophysiological indices also are able to determine preferred work practises adopted by employers for the benefit of their employees. One investigation measured psychophysiological responses to two different ways of organising

assembly line work. Participants with low control over work organization demonstrated a significant increase in systolic blood pressure, heart rate and adrenalin levels compared to the flexible organisation group. Further, psychophysiological indices indicated that participants in the flexible organisation group were able to relax more rapidly after work (Melin et al., 1999).

One study addressed improving the health of bus drivers by reducing hassles and, thus, improving driving conditions, and measuring its effects on psychophysiological responses. Results demonstrated that drivers experienced positive effects attributed to the reduction in job hassles due to the changes they implemented. A reduction in job hassles also predicted changes in stress reactions at work (Evans, Johansson & Rydstedt, 1999).

In summary, there is ample evidence that psychophysiological arousal has been associated with stress at work. This has been demonstrated by consideration of arousal levels on work and non-work days and by comparing responses to stressful and non-stressful work events. In addition, different occupational groups have been linked with elevated arousal levels, primarily because of the nature of the stressful events they experience. Finally, aspects of the work environment have been determined to influence arousal levels in employees.

7.1.4 Anticipatory and sustained arousal

Many of the studies of arousal level in relation to specific events have suffered from the lack of consideration of the fact that a person's response to any event varies across time. This variation in response, even over a brief period of time and within

a single stressful episode, has been demonstrated in relation to a range of events of clinical interest (e.g., Brain et al., 1998; Haines, Josephs, Williams & Wells, 1998; Haines et al., 1995; Haines, Williams, Sale & Glading, 2002; Wells, Haines, Williams & Brain, 1999; Williams, Haines & Sale, 2003), including in relation to occupational stress (Cardoz et al., 2002; Carson et al., 1998a, 1998b, 1998c, 1999, 2000; Haines, Williams & Carson, 2002).

Research has indicated that psychophysiological arousal is increased in anticipation of a stressful event. Cardiovascular activity during a pre-exam activity was as high as during an exam, indicating an anticipatory stress effect (Sausen et al., 1992). Similarly, a study of students during a class devoted to individual short oral presentations of academic work demonstrated subjective reports of stress and heightened arousal were evident at the beginning of the class. There was a peak of stress/arousal at the time of the presentation with resolution of the arousal response to its lowest point by half an hour post-presentation. Objective measures of arousal (salivary immunoglobulin A) showed the highest response in the moments after the presentation with a steady decline thereafter (Bristow, Huckelbridge, Clow & Evans, 1997).

When an intense psychophysiological response to stress at work is experienced, a high level of arousal is sustained. Research has demonstrated that for groups performing extensive computing tasks, arousal was higher and they took longer to relax after work, compared with non computer users (Johansson & Aronsson, 1984). "Slow unwinding" is regarded as a possible mechanism in the development of disease (Frankenhaeuser et al., 1989; Goldstein et al., 1992).

Some studies have used psychophysiological measures to identify individual differences in responses. Changes in levels of emotional stress were measured in a group of 10th grade students working on a computer by examining changes in cardiac rhythm, EEG, and galvanic skin response. One group of students was identified as being stress-resistant during computer classes whereas the other group were demonstrated to be stress-prone (Dzhebrailova, 1995).

Psychophysiological indices have also been found to be influenced by buffering factors. For example, a study was conducted of the buffering effect of social support in teachers. The sample was divided into high and low social support groups and blood pressure and heart rate were measured during the working day. Systolic and diastolic blood pressure and heart rate all increased during episodes of high stress. It was noted that there was a buffering effect of social support with no variation in response in the high support group (Stephoe, 2000). Similarly, a study of employees from a variety of occupations demonstrated a linear relationship between psychophysiological arousal and social support with participants who demonstrated the highest heart rate had the lowest social support (Unden, 1994).

Other studies have identified the significance of control over work pace and ability to avoid aversive consequences as having buffering effects on psychophysiological responsivity (Bongard & Hodapp, 1997). A laboratory study involving self and externally paced task conditions in a mirror-drawing task demonstrated greatest systolic blood pressure reactions and electrodermal activity to the externally paced task compared to the self-paced condition (Stephoe, Evans & Fieldman, 1997).

In summary, it is evident that anticipatory and sustained arousal are the features of some reactions to certain stressors. In addition, it is evident that the arousal response to stressors can be influenced by psychological factors such as perceived control and social factors such as support.

7.1.5 Guided imagery techniques

Criticisms have been directed towards the studies that have measured psychophysiological arousal in response to work stressors. Concern has been raised about the procedures that have been employed to measure psychophysiological responses (Fried et al., 1984). Factors such as caffeine consumption (James, 1991; Pincomb et al., 1987), nicotine use (Domino, Riskalla, Zhang & Kim, 1992; Krebs, Petros & Beckwith, 1994; Pritchard, Robinson, de Bethizy, Davis & Stiles, 1995; Rose & Behm, 1991), posture (Gellman et al., 1990; Goldstein et al., 1992), and time of day effects (Mavjee & Horne, 1994; Kennedy et al., 1983; Millar-Craig, Bishop & Raftery, 1978; Pickering, 1988) all have been identified as factors that can influence both laboratory and field studies.

In addition, logistical problems related to the measurement of stressful events have been identified (see McLaren, 1997), particularly the difficulties related to the need to record psychophysiological responses over a long period of time while waiting for the occurrence of a stressful event at work.

An alternative approach has been the use of structured, guided imagery techniques to recreate events of interest so that psychophysiological recordings of arousal responses can be made. This approach has been based on the propositions of

Lang (1979) who identified that memories or images of events were related to efferent outflow. The use of imagery techniques overcomes many of the disadvantages of ambulatory recording.

An advantage of guided imagery techniques is that they provide a means of examining responses to events that cannot be recreated in other ways. For this reason, the use of these types of techniques is well accepted in trauma research (e.g., Pitman et al., 1987; Shalev, Orr & Pitman, 1992). This advantage can also be applied to the examination of occupational stress when specific work events that have triggered a stress response need to be considered. Although differences in imagery ability may be expected in relation to the capacity to image events that never have been experienced, it has been determined that by eliciting memories of real or personal events, no differences in the strength of the response of people with good or poor imagery ability have been noted (Brain, Haines, Williams & Stops, 1996), thereby overcoming the problem of differential ability to image events.

Guided imagery techniques also allow for an examination of a specific event in terms of the changes in arousal that occur during the course of the event. Personalised, staged guided imagery has been successfully used in the examination of changes over time in response to episodes of self-injury (Brain et al., 1998, 2002; Haines et al., 1995; Wells et al., 1999), dissociative episodes (Williams et al., 2003), homicide (Haines, Williams, Sale & Glading, 2002), and obsessive-compulsive behaviours (Haines et al., 1998).

More importantly, a personalised, staged, guided imagery methodology was used to elicit information about responses to stressful work events. For example, the

characteristics of the response to stressful work events was examined among people who had and had not developed a phobic response to the workplace (Carson et al., 1998a, 1998b, 1998c, 1999, 2000; Haines, Williams & Carson, 2002). Further, a comparison was made of the responses of individuals who had experienced either an organisational or an interpersonal stressor at work with evidence of sustained arousal of the interpersonal stressor group being noted (Cardoz et al., 2002).

In summary, there clearly are advantages of using a personalised, guided imagery technique to elicit responses to memories of events at work. The examination can take place outside of the workplace, and can overcome many of the limitations of ambulatory recordings, but can still be related to real events and not laboratory-simulated events.

7.2 The current study

The current study aimed to examine the psychophysiological and psychological responses of the four groups to stressful and nonstressful work events with comparisons being made with an emotionally neutral event outside of work as a control measure. It was anticipated that the Compensation group would respond most strongly and most negatively to the stressful work event, followed by the Assistance group, the Stressed group; and the No Stress group. It also was hypothesised that the peak of arousal and the most negative response would occur during the incident stage when the most stressful aspect of the event in question would be described. It was expected that no differences between the groups in their responses to nonstressful work events or neutral events would be evident.

7.3 Method

7.3.1 Participants

The participants were a subset of the total sample described for Study 1 (n=60). The group sizes are comparable with those of other studies using guided imagery techniques (e.g., Brain et al., 1998, 2002; Haines et al., 1995; Haines et al., 1998; Haines, Williams & Carson, 2002; Pitman et al., 1987; Shalev et al., 1991).

7.3.2 Apparatus

Psychophysiological responses were recorded on a Macintosh Powermac 7300/75 computer linked to a MacLab/8S data acquisition system using Chart 3.5.6 software. Recordings were made at 1 mm/s, with a sampling frequency of 200 samples/s.

Electrocardiograph (ECG) was measured using 7mm Ag/AgCl electrodes fitted at the second rib on both sides of the torso, with an earth reference on the left mastoid process. The ECG signal was integrated to obtain a mean heart rate.

7.3.3 Materials

Visual Analogue Scales (VASs) were used to measure subjective reactions to imagery (McCormack, de Home & Sheather, 1988). VAS ratings represented a subjective score from 0 to 100 of response to imagery on bipolar dimensions: relaxed/tense, relaxed/anxious, calm/angry, unafraid/afraid, and relieved/upright. A higher score reflected a more negative experience. Participants also were asked how well they could image the material presented (Unclear/Clear) and to rate the

accuracy of the details included in the scripts (Not close/ very close). Higher scores on these scales were indicative of better imagery and more accurate script detail. A copy of the VASs is contained in Appendix I.

7.3.4 Imagery scripts

Participants were interviewed to establish details for personalised imagery scripts for three separate events:

1. An event at work which they experienced as stressful (stressful work);
2. An event at work which they experienced as non-stressful (non-stressful work); and
3. An emotionally neutral event not associated with work such as making a cup of coffee at home (neutral).

Participants were asked to recall details of the physical environment, the nature of the situation and their emotional and psychophysiological reactions to the event. Care was taken during the interviews not to ask leading questions.

Each script was composed of four stages, and contained the following details:

1. Setting the scene: sensory perception of the physical environment and the circumstances of the event;
2. Approach: events leading to the incident;
3. Incident: detail of the actual incident that caused the stress response; and
4. Consequence: events immediately following the incident.

The scripts contained a combination of response and stimulus information (Lang, 1979) extracted from the interviews using the language of each participant.

Script content represented a continuous series of events of a time-limited period. Examples of typical scripts of each type are included in Appendix J.

7.3.5 Procedure

Each participant was interviewed individually at length and in depth about a stressful event at work, a non-stressful event at work, and a neutral event. The interviews were structured and covered the physical environment, the approach to the incident, the incident itself, and the events immediately following the incident. As much detail as possible was elicited from the participant, including visual, auditory, and psychophysiological memories of the particular event. The interviews were recorded on audiotape. From these, individualised scripts for each event were developed.

The second session involved the attachment of electrodes to record psychophysiological responses. A second experimenter was involved in this session to supervise the recording of psychophysiological responses while the first experimenter verbally administered the scripts.

Participants were instructed to sit quietly with their eyes closed while a 60 second baseline was taken. Scripts were presented in counterbalanced order across participants. Each stage had a duration of approximately 60 seconds and a 10 second pause was included between stages during which participants were instructed to open their eyes. Participants were instructed to image the details of each stage, to closely follow the sequence of events, and to listen for specific instructions such as "Concentrate on the feeling right now." Participants completed VAS ratings at the

conclusion of each script, to measure this subjective response to each stage of the imagery script. To facilitate self-report ratings, the key elements of each stage were repeated prior to ratings for that stage.

7.3.6 Design

A 4 x 3 x 4 factorial design with repeated measures was employed to investigate differences in psychophysiological and psychological response in four groups (Compensation, Assistance, Stressed, No Stress) to three different imaged situations (stressful work, non-stressful work, neutral), and differences corresponding to each of the 4 stages within each script (setting the scene, approach, incident, consequence). Psychophysiological response was measured by changes in heart rate. Psychological measures included relaxed-tense, relaxed-anxious, calm-angry, unafraid-afraid, and relieved-uptight.

7.3.7 Data transformation and scoring

A 30 second scoring period of the record was selected from each stage of each script and the initial baseline. As scripts were personalised, scoring periods represented the part of each stage containing the most relevant information for that individual. The scoring period was based solely on script content and most commonly this period occurred approximately 15-20 seconds into each script stage. This scoring method has been successfully used previously (Brain et al., 1998, 2002; Haines, Carson & Williams, 2002; Haines et al., 1995; Haines et al., 1998; Wells

et al., 1999; Williams et al., 2003). Mean levels of response were calculated for heart rate.

7.3.8 Data analysis

Repeated measures analyses of variance were used to examine differences between groups, between scripts and across script stages. A significance criterion of .05 was adopted.

7.4 Results

The mean scores and standard deviations for each stage of each script for the psychophysiological and psychological data for the four groups are presented in Appendix K. The mean scores for the control VASs measuring content and clarity were within acceptable limits.

7.4.1 Psychophysiological response to imagery

There were no significant script by stage by group interactions. There was a significant script by stage interaction for heart rate, $F(6,330) = 3.30, p < .004$. Figure 21 presents this script by stage interaction.

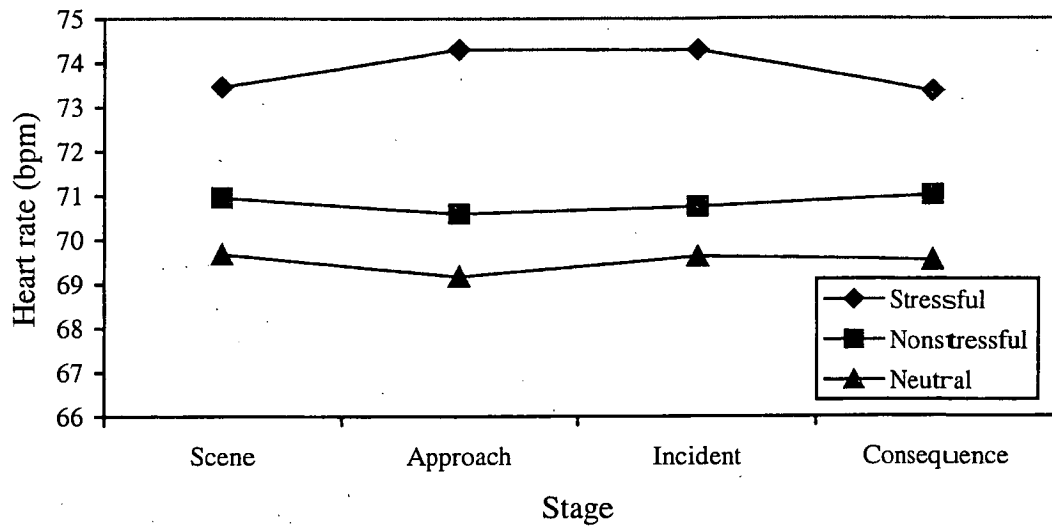


Figure 21.
The mean heart rate for each stage of each script.

Table 16 presents the post hoc statistics for the between script comparisons at each stage. At all of the four stages of imagery, heart rate in response to the stressful work event script was higher than to the other scripts. In addition, at all but the incident stage, the nonstressful work event elicited a higher heart rate than did the neutral event script.

Table 16.

The post hoc statistics for the between script comparisons at each stage for heart rate.

Stage	F	df	p	Fisher	Differences
Scene	22.3	2,116	.0001	1.1	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Approach	38.7	2,116	.0001	1.2	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Incident	24.7	2,116	.0001	1.4	Stressful > Nonstressful, Neutral
Conseq.	19.0	2,116	.0001	1.2	Stressful > Nonstressful, Neutral Nonstressful > Neutral

Across stage comparisons for each script were made. The results of the post hoc analyses are presented in Table 17. Only the stressful work event elicited changes across the stages of the imagery script. When considering consecutive stages, there was an increase in heart rate from the scene stage to the approach stage, and a reduction in heart rate from the incident stage to the consequence stage.

Table 17.

The post hoc analyses for the across stage comparisons for each script for heart rate.

Script	F	df	p	Fisher	Difference
Stressful	3.2	3,177	.03	0.9	Scene < Approach, Incident Approach > Consequence Incident > Consequence
Non-stressful	0.8	3,174	ns		
Neutral	1.2	3,177	ns		

7.4.2 Psychological response to imagery

A significant script by stage interaction was evident for the VAS relaxed-tense, $F(6,324) = 17.46$, $p < .0001$. Figure 22 presents this interaction.

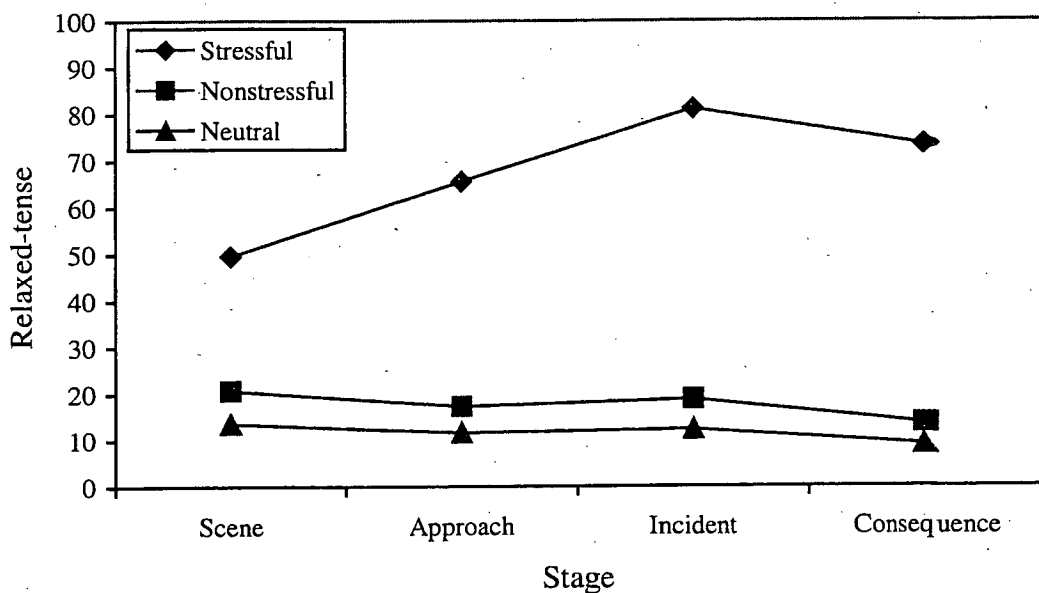


Figure 22.
The mean ratings for each stage of each script for the VAS relaxed-tense.

Table 18 presents the post hoc analyses for the between script comparisons at each stage of imagery. The stressful work event script elicited greater ratings of tension than did the nonstressful work event and the neutral event at all stages of imagery. In addition, at the setting the scene and incident stages, the nonstressful work event was associated with higher ratings of tension than the neutral event script.

Table 18.

The post hoc analyses for the between script comparisons at each stage for the VAS relaxed-tense.

Stage	F	df	p	Fisher	Differences
Scene	73.1	2,114	.0001	6.2	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Approach	145.8	2,114	.0001	6.9	Stressful > Nonstressful, Neutral
Incident	292.3	2,114	.0001	6.2	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Conseq.	200.6	2,114	.0001	7.1	Stressful > Nonstressful, Neutral

Table 19 presents the across stage comparisons for each script for the VAS relaxed-tense. Significant changes across the stages of each of the scripts were evident. When considering consecutive stage changes, there was an increase in rated tension in response to the stressful work event script from the scene stage to the approach stage and from the approach stage to the incident stage. This was followed by a decrease in tension from the incident stage to the consequence stage. A decrease from the incident stage to the consequence stage also was noted for the nonstressful work event script. No consecutive stage changes were evident for the neutral script.

Table 19.

The post hoc analyses for the across stage comparisons for each script for the VAS relaxed-tense.

Script	F	df	p	Fisher	Differences
Stressful	29.0	3,171	.0001	7.0	Scene < Approach, Incident, Consequence; Approach < Incident, Consequence; Incident > Consequence
Non-stressful	4.2	3,171	.007	4.1	Scene > Consequence; Incident > Consequence
Neutral	4.9	3,171	.003	2.4	Consequence < Scene, Approach, Consequence

There was a significant script by stage interaction for the VAS relaxed-anxious, $F(6,324) = 11.51, p < .0001$. Figure 23 presents this interaction.

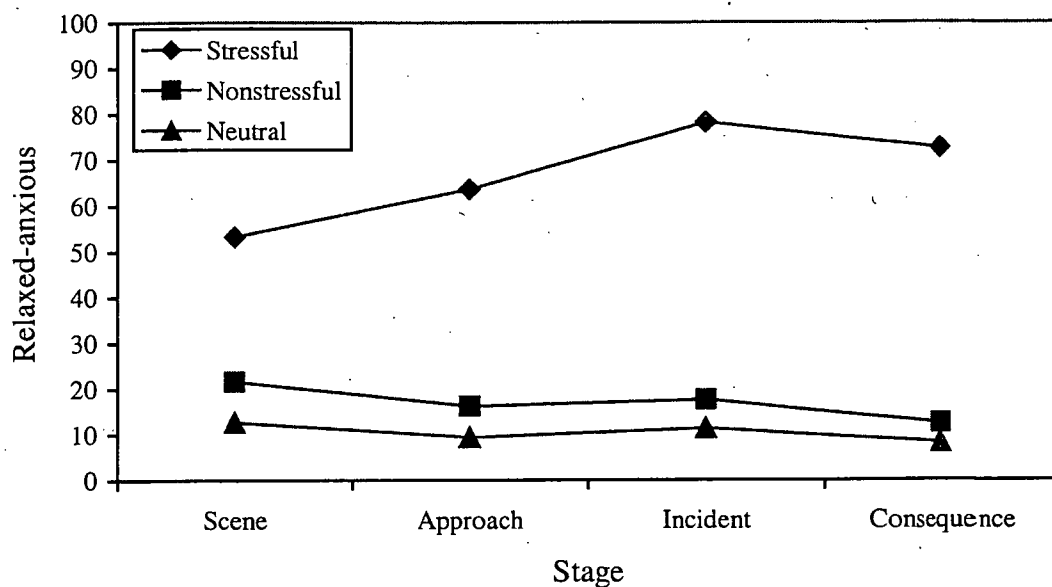


Figure 23.
The mean ratings for each stage of each script for the VAS relaxed-anxious.

Table 20 presents the post hoc results for the between script comparisons at each stage for the VAS relaxed-anxious. At each stage, the stressful work event elicited higher ratings of anxiety than did the nonstressful work event and the neutral event. In addition, at the scene, approach and incident stages, the nonstressful work event elicited higher ratings of anxiety than did the neutral script.

Table 20.

The post hoc analysis results for the between script comparisons at each stage for the VAS relaxed-anxious.

Stage	F	df	p	Fisher	Differences
Scene	82.5	2,114	.0001	6.6	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Approach	160.5	2,114	.0001	6.5	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Incident	287.6	2,114	.0001	6.1	Stressful > Nonstressful, Neutral Nonstressful > Neutral
Conseq.	235.4	2,114	.0001	6.6	Stressful > Nonstressful, Neutral

Table 21 presents the across stage comparisons for each script for the VAS relaxed-anxious. Significant changes across the stages of the scripts were demonstrated for all the script types. When consideration was given to the consecutive stage changes, there was an increase in anxiety for the stressful work event script from the scene stage to the approach stage. For the nonstressful work event and the neutral event script, anxiety increased from the scene stage to the approach stage and subsequently decreased from the incident stage to the consequence stage.

Table 21.

The post hoc analysis results for the across stage comparisons for each script for the VAS relaxed-anxious.

Script	F	df	p	Fisher	Differences
Stressful	18.8	3,171	.0001	7.0	Scene < Approach, Incident, Consequence; Approach < Incident, Consequence
Non-stressful	5.8	3,171	.0008	4.3	Scene > Approach, Consequence; Incident > Consequence
Neutral	4.5	3,171	.004	2.6	Scene > Approach, Consequence; Incident > Consequence

There was a significant script by stage interaction for the VAS calm-angry, $F(6,324) = 22.25, p < .0001$. Figure 24 presents this interaction.

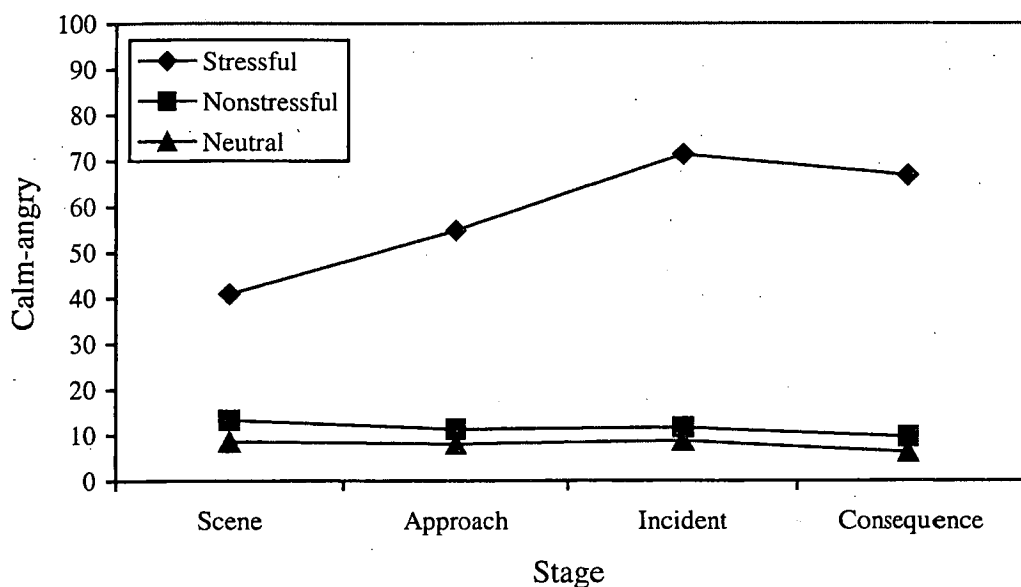


Figure 24.
The mean ratings for each stage of each script for the VAS calm-angry.

Table 22 presents the post hoc analyses results for the between script comparisons at each stage of the VAS calm-angry. In each case, the stressful work event elicited higher ratings of anger than the nonstressful work event and the neutral event. The latter two script types did not elicit different ratings of anger at any stage.

Table 22.

The post hoc analysis results for the between script comparisons at each stage of the VAS calm-angry.

Stage	F	df	p	Fisher	Differences
Scene	70.8	2,114	.0001	5.8	Stressful > Nonstressful, Neutral
Approach	128.7	2,114	.0001	6.4	Stressful > Nonstressful, Neutral
Incident	262.9	2,114	.0001	6.1	Stressful > Nonstressful, Neutral
Conseq.	235.9	2,114	.0001	6.21	Stressful > Nonstressful, Neutral

Table 23 presents the results from the post hoc analyses considering across stage differences for each script for the VAS calm-angry. Significant across stage changes were noted for the stressful work event and the neutral event. For the stressful work event, there was an increase in anger from the scene stage to the approach stage and from the approach stage to the incident stage. For the neutral script, the ratings of anger decreased from the incident stage to the consequence stage.

Table 23.

The post hoc analysis results for the across stage comparisons for each script for the VAS calm-angry.

Script	F	df	p	Fisher	Differences
Stressful	30.6	3,171	.0001	6.9	Scene < Approach, Incident, Consequence; Approach < Incident, Consequence
Non-stressful	2.1	3,171	ns		
Neutral	3.8	3,171	.02	1.6	Consequence < Scene, Approach, Incident

There was a significant script by stage interaction for the VAS unafraid-afraid, $F(6,324) = 9.31, p < .0001$. Figure 25 presents this interaction.

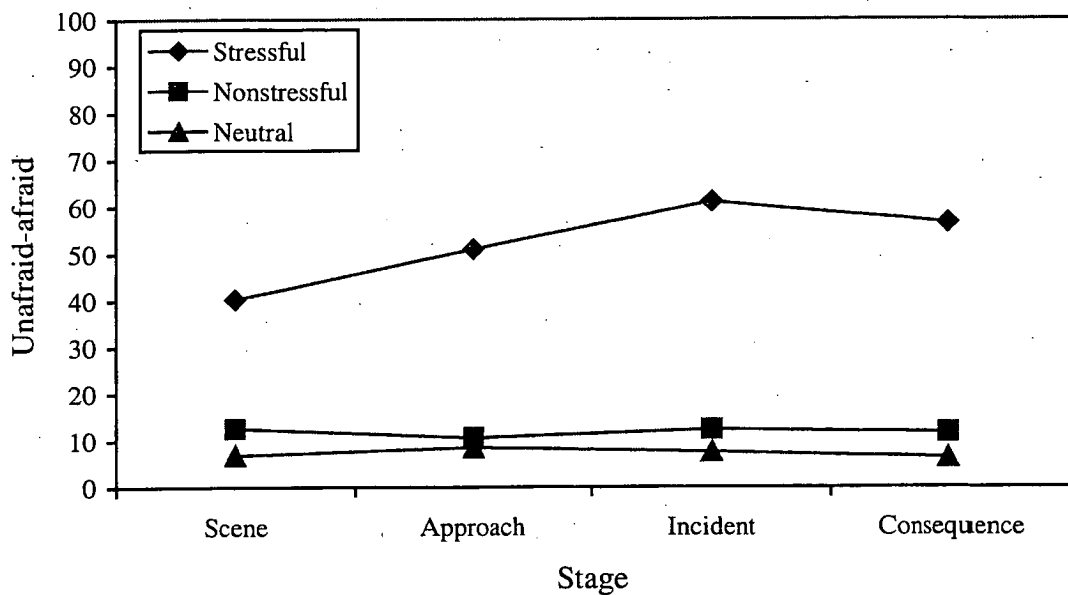


Figure 25.
The mean ratings for each stage of each script for the VAS unafraid-afraid.

Table 24 presents the post hoc analysis results for the between script comparisons at each stage for the VAS unafraid-afraid. At each of the stages the stressful work event script elicited higher ratings of fear than did the nonstressful work event and neutral event scripts. No differences were noted between the nonstressful work event and neutral event at any of the stages.

Table 24.

The post hoc analysis results for the between script comparisons at each stage for the VAS unafraid-afraid.

Stage	F	df	p	Fisher	Differences
Scene	64.0	2,114	.0001	6.3	Stressful > Nonstressful, Neutral
Approach	92.9	2,114	.0001	7.0	Stressful > Nonstressful, Neutral
Incident	169.5	2,114	.0001	6.4	Stressful > Nonstressful, Neutral
Conseq.	110.6	2,114	.0001	7.3	Stressful > Nonstressful, Neutral

Table 25 presents the across stage analysis results for each script for the VAS unafraid-afraid. Significant across stage changes were evident only for the stressful work event script. When considering consecutive stage changes, there was an increase in fear from the scene stage to the approach stage, and a further increase from the approach stage to the incident stage.

Table 25.

The post hoc analysis results for the across stage comparisons for each script for the VAS unafraid-afraid.

Script	F	df	p	Fisher	Differences
Stressful	17.8	3,171	.0001	5.9	Scene < Approach, Incident, Consequence; Approach < Incident
Non-stressful	0.4	3,171	ns		
Neutral	1.4	3,171	ns		

There was a significant script by stage interaction for the VAS relieved-uptight, $F(6,324) = 8.16, p < .0001$. Figure 26 presents this interaction.

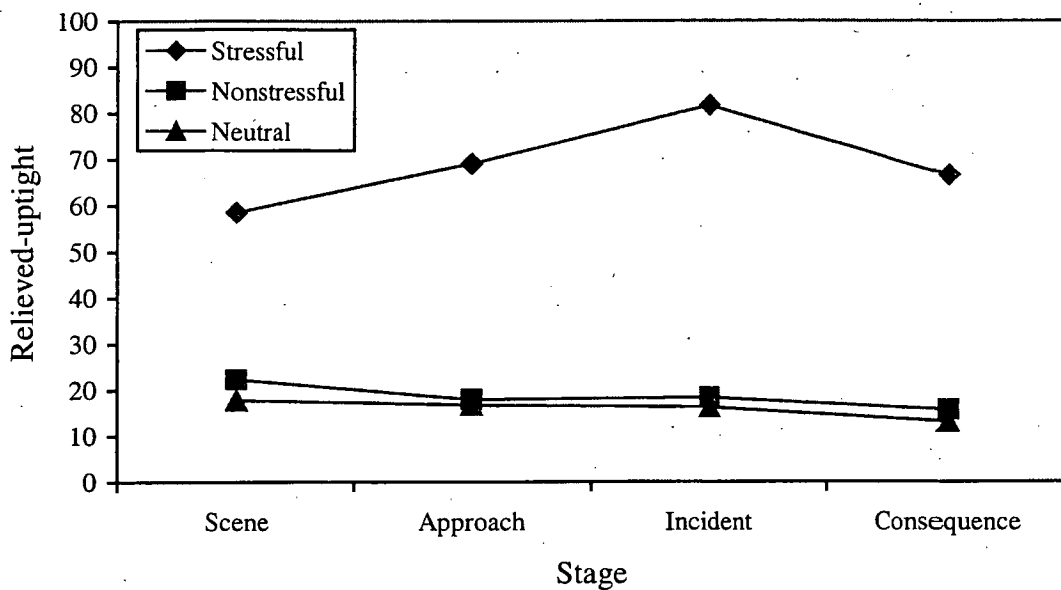


Figure 26.
The mean ratings for each stage of each script for the VAS relieved-uptight.

Table 26 presents the results from the post hoc analyses comparing ratings for each script at each stage for the VAS relieved-uptight. Elevated levels of ratings of feelings of being uptight were noted for the stressful work event script in comparison with the nonstressful work event and the neutral event scripts. No differences were apparent between the nonstressful work event or the neutral event at any of the stages.

Table 26.

The post hoc analysis results for the between script comparisons at each stage for the VAS relieved-uptight.

Stage	F	df	p	Fisher	Differences
Scene	76.1	2,114	.0001	7.2	Stressful > Nonstressful, Neutral
Approach	172.6	2,114	.0001	6.4	Stressful > Nonstressful, Neutral
Incident	325.8	2,114	.0001	5.8	Stressful > Nonstressful, Neutral
Conseq.	97.3	2,114	.0001	8.6	Stressful > Nonstressful, Neutral

Table 27 presents the across stage post hoc analysis results for each script for the VAS relieved-uptight. All scripts were associated with significant changes in ratings across the stages. With regard to consecutive stage changes, there was an increase in feeling uptight in response to the stressful work event script from the scene stage to the approach stage with a further increase from the approach stage to the incident stage. This was followed by a decrease from the incident stage to the consequence stage. For the neutral script, there was a decrease in ratings of feelings uptight from the incident stage to the consequence stage. There were no consecutive stage differences for the nonstressful work event.

Table 27.

The post hoc analysis results for the across stage comparisons for each script for the VAS relieved-uptight.

Script	F	df	p	Fisher	Differences
Stressful	10.3	3,171	.0001	8.3	Scene < Approach, Incident; Approach < Incident; Incident > Consequence
Non- stressful	2.9	3,171	.04	4.5	Scene > Consequence
Neutral	7.4	3,171	.0001	2.1	Consequence < Scene, Approach, Incident

7.5 Discussion

It is evident that the reactions to work-related events at the time of the event differ between highly stressful and mundane tasks. Such results have been reported elsewhere. One study reported psychophysiological changes throughout the experience of a high stress task but elevated in response only at the beginning of a monotonous task (Ohsuga et al., 2001). It was the high stress task that was associated with high mental workload and excessive emotional strain. The results of the current study supported this research. Responses to stressful and non-stressful work events could be differentiated on the basis of psychophysiological and psychological reactions.

It is apparent from the literature that psychological reactions are a function of the processes in operation. For example, the nature of the work-team climate among

health workers was related to the development of job related tension (Peiro, Gonzalez-Roma & Ramos, 1992). Other studies have examined the differences in emotional response to work events. Those participants who experienced high work strain reported a more negative response over the course of their day than did people with low strain jobs (Matthews et al., 2000). Adding further stress to the job, such as would occur with electronic monitoring of performance, increased tension, anxiety and anger among other factors (Smith, Carayon, Sanders, Lim & Legrande, 1992). The nature of employment has been reported to have an effect on the development of tension while at work. For example, casual work rather than permanent work was associated with lower tension levels (Rodriguez-Marin, Mira, Aranaz & Vitaller, 1992).

There is evidence of higher levels of state anxiety being apparent in people with stressful or high demand jobs (e.g., Barnes, 1992a, 1992b). Elevated state anxiety would leave people vulnerable to the negative effects of specific work events. However, certain occupational groups also have been reported to have high levels of trait anxiety (Barnes, 1992a, 1992b) indicating a predisposition to react with an escalation of anxiety at the time of a stressful life event. The proposition that there are personal characteristics that increase the likelihood that a person will react more strongly to workplace events has been supported by research examining the influence of Type A personality on the development of job-related tension (Gamble & Matteson, 1992). The lack of difference in personal characteristics identified in Chapter four may account for the lack of differentiation in the response to the stressful work events as demonstrated from the results of the current study.

Anger in response to interpersonal workplace stressors has been reported although individuals with the characteristic of internal locus of control were more prone to anger than were people with external locus of control, a result that may be explained, at least in part, by the selection of coping strategy to deal with the workplace stressor (Hahn, 2000). In general, the more angry or aggressive the encounter, the more negative the outcome (Glomb, 2002).

Fear of the unknown has been reported in response to work-related stressors for some occupational groups such as fire fighters engaging in rescue work (Fullerton, McCarroll, Ursano & Wright, 1992). However, there is little evidence in the literature that fear is experienced in response to more common workplace stressors. Nonetheless, there is evidence that fearfulness, at least to a moderate level, has been reported by the current sample in response to stressful work events.

It has been suggested that differences in the way people respond to work events and, ultimately, the development of work-related stress reactions is a function of a dispositional tendency to experience stronger signs or symptoms of autonomic nervous system arousal to both positive and negative emotionally-laden stimuli. However, results of an examination of this proposition indicated that although this tendency was related to psychological and job satisfaction outcomes, it could not be related to the experience of specific work-related events (Klein & Verbeke, 1999).

In the current study, autonomic nervous system arousal to stressful and nonstressful work events did not distinguish the groups. This may indicate that differences in autonomic nervous system arousal were not evident, or that there was variation in response within each group. That is, the groups were not distinguished

on the basis of their autonomic nervous system response because each group contained people who responded strongly and those who responded only weakly. This would mean that even if differences existed, they were not related to the severity of outcome as determined for this study related to seeking workers' compensation, seeking professional assistance, or managing stress responses without assistance.

Although there was no evidence of a differential response to stressful events at work, it may still be the case that the response to the event can contribute to the understanding of specific outcomes. For example, the results of an investigation that was a precursor to the current study demonstrated that individuals who had developed a phobic response to the workplace because of the experience of workplace events clearly had stronger psychophysiological arousal responses and more subjective fear in relation to the stressful workplace event than did workers who developed a stress response but not a phobic response and workers who did not develop a stress response (Carson et al., 1998a, 1998b, 1998c; Haines, Williams & Carson, 2002). The high level of autonomic nervous system arousal and the subjective fear response were intense enough to produce an avoidance response of the workplace in these individuals.

There have been many recommendations for the implementation of stress management and other intervention techniques in the workplace as a method for controlling stress responses (e.g., Barrios-Choplin, McCraty & Cryer, 1997; Lang, 1992; Sharpley, 1994; Stein, 2001; Toivanen, Laensimies, Jokela & Haenninen, 1993; Tsai & Crockett, 1993). These are based on the assumption that stress

reactions develop at the time of the experience of events at work and that management of these stress responses will serve to prevent the development of or ameliorate the longer term negative reactions (e.g., Gronningsaeter, Hytten, Skauli, Christensen & Ursin, 1992; Stein, 2001). Further, the aim has been reported to be a change in perception of the job following reductions in anxiety and, indeed, a more positive attitude towards the job was the result of workplace interventions (Firth-Cozens & Hardy, 1992).

Effectiveness of these programs has been reported (e.g., Barkham & Shapiro, 1990; Firth-Cozens & Hardy, 1992; Kushnir & Malkinson, 1993), although they may not always have been universally successful in addressing all targeted outcomes (e.g., Gronningsaeter et al., 1992; Lang, 1992). Despite the reports of good outcomes from the implementation of these types of programs with some samples, they have been criticised because of their generic nature and their failure to address the complexity of the development of a stress response. Indeed, it has been recognised that focus on individual change without taking account of organisational influences has not been proven to be a worthy undertaking. In fact, when individual and organisation-based responses to occupational stress were compared, the individual approach resulted only in short-term improvements (Bunce & West, 1996).

The results of the present study would support the validity of the criticisms directed at the implementation of these types of global programs. If psychophysiological and emotional responses to the stressful work event at the time of the event were the sole determinants of negative outcome and could be

ameliorated by the management of these reactions, then differences between groups in terms of their outcomes should not be evident. That is, as all participants responded to stressful work events in the same way, it is not the case that the differences in the outcomes as defined by the group allocation can be accounted for by the reaction at the time of the event.

CHAPTER 8

THE OUTCOME OF EXPOSURE TO WORKPLACE STRESSORS

8.1 Introduction

The final step in examining occupational stress lies in the consideration of the nature of the outcomes of being exposed to and reacting poorly to workplace stressors. Stressful conditions at work are known to result in a variety of physical and psychological symptoms (Bartone et al., 1998). A wide range of symptoms have been reported to have developed as a consequence of exposure to workplace stressors among a wide range of occupational groups (Haines et al., 1996), including anxiety-related symptoms (e.g., panic attacks, generalised anxiety), depressive symptoms (e.g., lowered mood, tearfulness, loss of interest and pleasure in previously pleasurable activities), somatic symptoms (e.g., rashes, muscle pain), and more severe symptoms such as psychosis and suicide attempts.

The experience of stressful events at work may manifest in behaviour change. The most thoroughly considered change in behaviour has been the use or abuse of substances as a means of dealing with workplace stressors. The experience of workplace stressors has been reported to result in coping efforts. The selection of coping strategy may determine the ultimate outcome in terms of whether or not the individual would be able to persevere at work in the face of extreme workplace stressors. Finally, the experience of workplace stressors has been identified as resulting in changes in attitude towards the workplace and the job. Such changes would entail reductions in job satisfaction or quality of life at work. The aim of this study is to consider the final stages of Berry's model in terms of the outcomes of exposure to workplace stressors.

8.1.1 Psychological symptoms

Exposure to work-related stressors has been demonstrated to result in changes in psychological functioning. There is some variation in the focus of the research examining the psychological effects of exposure to stressful work events. For example, the work of Barling and colleagues focused on depression/mood and burnout (Barling & Kryl, 1990; Barling & MacIntyre, 1993; Bluen & Barling, 1987; Bluen, et al., 1990; Kelloway & Barling, 1991; Stewart & Barling, 1996). Burke and colleagues focused on burnout and anxiety (Burke, 1987, 1995; Burke & Greenglass, 1993, 1995b; Burke, Greenglass & Schwarzer, 1996). Finally, Dolan and colleagues considered depression, burnout, somatic symptoms and well-being (Dolan, 1994; Dolan, Van Ameringen & Arsenault, 1992). Despite these variations, it is generally acknowledged that a range of negative psychological consequences can develop as a result of exposure to work-related stressors.

The research literature has reported psychological symptoms as a consequence of exposure to workplace stressors in specific occupational groups such as nurses (e.g., Bourbonnais et al., 1999; Greenglass & Burke, 2000) and teachers (e.g., Belcastro, Gold & Hays, 1983; Byrne, 1993). For example, anxiety and depressive symptoms were reported in psychiatrists (Rathod et al., 2000). A study of extension agents (Sears, Urizar & Evans, 2000) demonstrated a substantial proportion of participants reported significant burnout symptoms. Considerable work has been conducted on police officers and their psychological responses to workplace stressors. For example, anxiety levels among police officers in relation to workplace events has been investigated (e.g., Alexander, 1993; Burke, 1993b; Doctor, Curtis

& Isaacs, 1994; Hart et al., 1995; Storch & Panzarella, 1996) and the risk of development PTSD has been reported to be high (e.g. Carlier, Lamberts & Gersons, 1996; Follette, Polunsky & Milbeck, 1994; Kuch, Travis & Collins, 1995).

Further studies have considered the relative level of psychological symptoms by comparing psychological disturbance among people working in different areas within the same general occupational group. For example, a combination of high psychological demand and low decision latitude was reported to result in psychological distress among white-collar workers (Bourbonnais et al., 1996). When comparing psychiatrists and surgeons, it was the psychiatrists who reported the highest levels of depression and emotional exhaustion (Deary et al., 1996). A comparison of primary care physicians and hospital physicians indicated that both groups demonstrated all symptoms of burnout but that emotional exhaustion was greater for the general medical practitioners (Grassi & Magnani, 2000).

Finally, comparisons have been made between different occupational groups. For example, a comparison was made of the reactions of general medical practitioners and white collar workers to jobs characterised by high demand and low control (O'Connor, O'Connor, White & Bundred, 2000). The medical practitioners reported higher levels of depression than the white collar workers.

Japanese assembly line workers and the support workers from the same organisation and who were under the threat of job loss were compared in relation to their level of depressive symptoms (Tsutsumi, Kayaba et al., 2001). Depressive symptoms were highest in support workers and it was determined that work factors such as low control, effort-reward imbalance, and over-commitment were

independently related to depression. The effects were most noticeable in employees threatened with job loss.

When examining the influences of exposure to workplace stressors, the research focus of some studies has been on the development of specific psychological responses. A good example of this has been the focus on the development of burnout. The original conceptualisation of burnout saw it as a state where emotional and physical resources had been depleted (Freudenberger, 1974). It was believed that burnout occurred in human service workers as a result of work environment demands. Burnout symptoms have been reported, for example, among sexual assault counsellors (Johnson & Hunter, 1997), police officers (Burke, 1993a; Tang & Lau, 1996), teachers (Burke & Greenglass, 1993, 1995a; Fejgin et al., 1995) and nurses (Elliot et al., 1996; Melchior et al., 1997).

Although a variety of definitions exist, and despite debates about the concept (Mitchell & Bray, 1989) and the way it is measured (Dohrenwend, Shrout, Egri & Mendelsohn, 1980; Hammen & DeMayo, 1982; Meier, 1984), burnout generally is understood to be a constellation of symptoms characterised by cognitive, behavioural and affective manifestations of helplessness, hopelessness and negative attitudes towards self, work and clients (Freudenberger & North, 1985; Maslach & Jackson, 1986; Price & Spence, 1994) and is measured in terms of emotional exhaustion, depersonalisation and lack of personal accomplishment (Maslach & Jackson, 1981).

Burnout has been reported to result from exposure to work-related stressors. For example, child care workers who reported role conflict and role ambiguity were

more likely to report all three measured components of burnout (Manlove, 1994). The factors leading to burnout are varied. Leiter (1991) demonstrated that in an environment with high levels of task demand and low levels of resources necessary to match the demands, symptoms of burnout are marked.

Anxiety symptoms have been reported to develop as a consequence of exposure to work-related stressors. For example, highly stressed workers were reported to experience elevated levels of anxiety in comparison with workers with low levels of stress (Rahman, 1989). British teachers were demonstrated to report more generalised anxiety and somatic anxiety than most other occupation comparison groups (Travers & Cooper, 1994).

There are factors that may protect workers from the development of anxiety responses at work. For example, among lawyers, it was reported that well developed self-esteem and internal locus of control resulted in lower levels of anxiety at work (Callan et al., 1994).

Problems with the understanding of anxiety responses as consequences of work-related stressful conditions have been highlighted (Baba, Jamal & Tourigny, 1998). Most noticeably, the distinction between state and trait anxiety has been problematic in that trait anxiety has been viewed as an antecedent to psychological difficulties (e.g., Roskies et al., 1993) whereas state anxiety has been understood as a consequence of exposure to stressful events (e.g., Greenglass, 1993). Further, it has been argued that the convenience sampling of nurses, teachers and other professional groups has resulted in little information being available about the anxiety responses

of other occupational groups such as blue-collar workers or the self-employed (Baba et al., 1998) and this has created a gap in the literature.

Depression has been reported to be a well-established consequence of exposure to work-related stressful conditions. For example, levels of depression among teachers has been reported to be higher than would be expected among a sample of community residents (Schonfeld, 1990). Specific work stressors such as high demand-low control environments have been associated with the development of depression among both male and female employees (Karasek & Theorell, 1990). Further, the self-protective factors of internal locus of control and higher self-esteem were reported in relation to depression among lawyers (Callan et al., 1994).

It is apparent that people in some occupational groups are particularly vulnerable to the development of specific forms of psychopathology such as Posttraumatic Stress Disorder (PTSD), for example, police (e.g., Robinson, Sigman, & Wilson, 1997), medical personnel (e.g., Hillhouse, Adler, & Walters, 2000; Klamen, Grossman, & Kopacz, 1995), soldiers (e.g., Bartone et al., 1998; Stuart, & Halverson, 1997), counsellors of traumatised populations (e.g., Iliffe & Steed, 2000; Schauben, & Frazier, 1995), and rescue workers (e.g., Lindeman, Saari, Verkasalo, & Prytz, 1996).

A questionnaire study of police officers and their experience of duty-related stress was conducted (Robinson et al., 1997). Results indicated significant associations between scores on duty-related stress, somatisation, and symptoms of PTSD. Of the sample, 13% met DSM-IV diagnostic criteria for PTSD (American Psychiatric Association, 1994). Duty-related stress involving exposure to life and

death situations particularly predicted the diagnosis for PTSD. Other studies have produced similar results (Carlier, et al., 1997).

Critical incidents, personality and psychopathology were investigated in ambulance personnel (Alexander & Klein, 2001). Unacceptably high levels of posttraumatic stress symptomatology, other psychological symptomatology, and burnout symptoms were experienced by about one third of the sample. An increased likelihood of burnout was related to lower levels of job satisfaction, a longer time on the job, more frequently occurring critical incidents resulting in less recovery time, and greater exposure to incidents. More traumatic incidents lead to an increased likelihood of the development of psychopathology and burnout.

The courses of symptoms of occupational stress have been monitored. The psychological symptoms of junior house officers during the early months of their first post were investigated (Houston & Allt, 1997). Graduates completed questionnaires prior to and eight weeks following the start of their placement. Results demonstrated significant increases in subjective reports of anxiety, insomnia and somatic symptoms. A further longitudinal study investigated the relationships of work-family and family-work conflict with self-reported depressive symptoms among other factors (Frone et al., 1997). The results indicated that it was family-work conflict that was longitudinally related to elevated levels of depression.

The effect on the course of symptoms of the implementation of intervention programs has been considered. For example, the effectiveness of a training program for carers in nursing and residential homes for the elderly was investigated. Results demonstrated that over a six month period, the psychological distress of the carers in

the control group significantly increased. There was no significant increase in psychological distress among the training group (Proctor, Stratton-Powell, Tarrier, & Burns, 1998).

In contrast, 104 government tax office employees were identified as having stress-related symptoms (Lindquist, & Cooper, 1999). The sample was divided into a control group and treatment group who were to undergo an eight week intervention program. At the end of the treatment period, there were no statistically significant differences between the treatment group and control group for outcome measures of stress and health indicating the often chronic nature of occupational stress symptoms.

Relatively few studies have considered differing levels of job stress in participants and the relationship between degree of occupational stress and the development of psychological symptomatology. One study that has (Sharma, Yadava, & Yadava, 2001) assessed the impact of job stress on the mental health of females with low (nonworking), moderate (job requiring approximately 4 hours work per day) and high (job requiring 8 hours or more work per day) job stress. It was the moderate job stress group who had the least symptomatology as measured by less depression and better psychological functioning.

Further, the General Health Questionnaire was employed to determine high and low levels of stress responses in a sample of health care staff (Carr et al., 1996). The high stress group had a distinct profile of symptoms compared with those experiencing less stress. The high stress group were younger and reported more anxiety symptoms along with more somatic symptoms.

Of course, not all studies have reported an association between exposure to occupational stressors and the development of psychological symptomatology. There may be other factors that intervene to prevent the development of a negative psychological response. For example, an investigation of occupational therapists in Sweden showed a low level of stress across the sample despite exposure to occupational stressors (Wressle & Oeberg, 1998). The low levels of both emotional and physical symptomatology was accounted for by the reported high work satisfaction in this group.

In summary, despite variations in the focus of research in terms of symptoms considered and occupational groups examined, it is apparent that exposure to work-related stressors does result in elevations in psychological symptomatology and problems with psychological adjustment. There is some evidence that there are factors that may protect an individual from the development of negative psychological consequences.

8.1.2 Physical symptoms

The development of physical symptoms as a consequence of exposure to work-related stressors has been reported. It was recognised by Holmes and Rahe (1967) that the experience of stressful life events resulted in patients seeking treatment for physical illnesses. For some, help-seeking for physical illness may be more acceptable than acknowledging psychological distress (e.g., Chu, 1988; Lu, Tseng & Cooper, 1999).

The occupational stress literature relevant to this area can be divided into three categories: research examining the presence of somatic symptoms associated with psychological conditions such as the physical manifestations of depressive symptoms; research reporting the development of psychosomatic symptoms as a consequence of psychological distress; and research investigating the relationship between psychological distress and the development of physical illness.

It clearly is the case that psychological conditions are associated with the experience of a range of physical symptoms. It is evident that these symptoms are reported following the experience of work-related stressful conditions and the development of occupational stress. For example, somatic complaints as a consequence of work-related stressors such as threats from patients or their families were reported by mental health professionals (Finnoy, 2000).

Among social workers and home help workers, physical exhaustion along with emotional exhaustion were the most commonly reported consequences of occupational stress (Bradley & Sutherland, 1995). Among psychiatrists, reports of fatigue, muscle pain and headaches were common (Rathod et al., 2000).

Specific work-related stressors have been related to the physical manifestation of psychological distress. Feelings of fatigue were temporally related to changes in workload for bus drivers who were tracked over an 18 month period (Rydstedt & Johanssen, 1998). Job demands and job control were demonstrated to have significant effects on insomnia, sleep deprivation, and daytime fatigue (Kalimo, Tenkanen, Haermae, Poppius & Heinsalmi, 2000). The greatest effects were in daytime workers compared to shift workers.

It has been reported that the psychological distress associated with exposure to work-related stressful conditions has resulted in the development of psychosomatic symptoms. For example, one physical manifestation of occupational stress has been reported to be the experience of chronic pain. Beaton, Murphy and Pike (1996) investigated the consequences of occupational stress among a large group of public sector fire-fighters and paramedics who were considered to be high strain workers. Results demonstrated that more than 95% of the sample reported at least one pain complaint and these pain symptoms were related to the experience of a range of work stressors.

Specific work stressors have been reported to result in the development of psychosomatic symptoms in some samples. For example, a study of public sector employees indicated that individuals who identified a lack of support at work (belonging support, instrumental support, and supportive atmosphere) experienced psychosomatic symptoms. Further, individuals who identified a lack of belonging support and lack of social integration outside of work experienced more gastrointestinal symptoms (Unden, 1996).

The course of psychosomatic symptoms has been temporally linked with exposure to work stressors. For example, changes in workload over an 18 month period influenced the psychosomatic symptoms reported by bus drivers (Rydstedt & Johansson, 1998). Increases in psychosomatic and psychological symptoms were reported as the training of junior house officers progressed and as the demands placed on them increased (Houston & Allt, 1997). Finally, family-work conflict was

demonstrated to be longitudinally related to poor physical health and the development of hypertension (Frone et al., 1997).

It may be the way in which an individual copes with the experience of a work-related stressor that determines whether psychosomatic symptoms will develop. It was determined that the use of escapist coping was positively related to the development of psychosomatic symptoms whereas the use of active coping was associated with fewer psychosomatic symptoms (Burke & Greenglass, 2000c).

Physical conditions have been reported to develop as a consequence of the effects of stressful experiences at work. A study of the occurrence of physical complaints and the effect of psychological stressors was conducted in a group of sign language interpreters (Feuerstein, Carosella, Burrell, Marshall & DeCaro, 1997). Results demonstrated that upper extremity symptoms were prevalent in the sample. However, rather than merely a manifestation of physical load, work demands, work-style and psychosocial stressors were the factors that increased the prevalence and exacerbated pain, muscular tension, functional limitations and work disability.

Further, Elovainio and Sinervo (1997) investigated occupational stressors and their effect on psychological symptoms and musculoskeletal symptoms among Finnish staff working in residential homes and home help staff. Results indicated that psychological stress had a mediating effect between psychosocial stressors and musculoskeletal symptoms. Again, the musculoskeletal symptoms were not a direct result of excessive muscle load. Indeed, the relationship between occupational stress

and the development of musculoskeletal disorders has been reported elsewhere (e.g., Huang, Feuerstein, Berkowitz & Peck, 1998; Lundberg et al., 1999).

A study to determine the effects of psychological stress on muscle activity, particularly in the trapezius muscles of the neck and shoulders, was conducted in a sample of adults. When performing a VDU entry task under psychologically stressful and non-stressful conditions, heart rate, heart rate variability, hormone levels, and subjective ratings of affect and somatic manifestations of stress were measured. Results demonstrated that some individuals may have a greater predisposition to experience muscle tension increasing the chances that they will experience musculoskeletal pain and related symptoms (Ekberg et al., 1995).

Similarly, Ahlberg-Hulten, Theorell and Sigala (1995) studied nurses and nurse aides to determine the relationship between the psychosocial work environment and musculoskeletal pain. Symptoms from the lower back were significantly influenced by psychological demands, authority over decisions, skill utilisation, and support at work. Support at work also influenced symptoms in the neck and shoulders. Further analysis demonstrated symptoms from the back were significantly related to job strain. Torp and colleagues (1999) also demonstrated exacerbation of musculoskeletal symptoms by psychosocial work environment factors.

Further to the work on musculoskeletal conditions, a number of investigations have demonstrated a relationship between occupational stress and cardiovascular disease (e.g., Johnson et al., 1989; Melamed, Kushnir & Shirom, 1992; Uehata, 1991). Cardiovascular disease has a significant impact on midlife health-related

quality of life (Marmot & Elliott, 1992). Although the aetiology is considered to be multifactorial, psychosocial stress has been recognised as a contributor to the disease (Beamish, Singal & Dhalla, 1985), as well as increasing the likelihood of the development of certain risk factors for cardiovascular disease such as hypertension (e.g., Henry, 1997) and atherogenic lipids (Schneiderman & Skyler, 1996).

The chronic psychosocial stressors involved with occupational stress have been reported to contribute to the risk factors of cardiovascular disease (Peter & Siegrist, 1997, 1999). It has been demonstrated that high demand and low decision latitude at work increases the risk of coronary heart disease (Alfredsson & Theorell, 1983; Hutt & Weidner, 1993; Karasek, Baker, Marxer, Ahlbom & Theorell, 1981; Karasek et al., 1988).

In summary, there is evidence in the literature that there can be physical manifestations of occupational stress. These manifestations take the form of physical symptoms of psychological conditions, psychosomatic symptoms, and increased risk of the development of physical conditions or illness.

8.3.3 Substance use

It is evident that in response to work stressors, people may change their behaviour in an attempt to meet the additional demand or challenge. An example would be changes in the patterns of substance use. Although it is acknowledged that substance use can be viewed as a coping strategy, it will be considered separately from coping strategies because of the separate health effects of substance misuse and because it is a clear example of behaviour change in response to occupational stress.

Reports of misuse or overuse of alcohol in response to occupational stress have been noted. It was evident that workers with the highest stress scores reported greater alcohol consumption and more sickness absence (Fagin et al., 1996). A range of workplace stressors have been associated with heavy alcohol consumption (Hagihara, Tarumi, Miller, Nebeshima & Nobutomo, 2000).

When considering specific stressors, it is evident that alcohol use increases in response to particular events. For example, results from a longitudinal study indicated that work-family conflict, role ambiguity and high work pressure were related to elevated levels of heavy alcohol use (Frone et al., 1997). For physicians during their internship, there was a range of workplace stressors such as sexual harassment, discriminatory treatment and psychological humiliation that were related to a range of negative drinking outcomes (Richman, Flaherty & Rospenda, 1996). The negative influences of sexual harassment and general workplace abuse on alcohol consumption patterns were supported by a longitudinal study of occupational stress and alcohol (Rospenda, Richman, Wislar & Flaherty, 2000).

As with alcohol use in general, and the relationship between stress and alcohol use (e.g., Bromet, Dew, Parkinson & Schulberg, 1988; Horwitz & Davies, 1994; Pianta & Egeland, 1994), sex differences in the relationship between occupational stress and alcohol consumption have been reported showing a male preference. The results from a longitudinal study indicated that relative to low strain employment, males employed in a high strain job with high psychological demands and low control were almost 28 times more likely to develop an alcohol-related disorder such as abuse or dependence, and were four times more likely if their jobs entailed high

physical demands and low control (Crum, Muntaner, Eaton & Anthony, 1995). However, other studies have found no sex difference at all (e.g., Gorman, 1988)

It may also be the case that particular occupational groups are more vulnerable to the adoption of excessive alcohol consumption in response to occupational stress. For example, almost one third of a sample of police officers were found to be at risk of harm from excessive alcohol consumption with stress being the most significant predictor of increased alcohol use (Davey, Obst & Sheehan, 2001). This was despite the fact the participants themselves related that they drank alcohol for social reasons. Substance use among police officers exposed to stressful work conditions have been noted elsewhere (e.g., Beutler, Nussbaum & Meredith, 1988; Farkas, 1986; Pendergrass & Ostrove, 1986; Smith & de Chesnay, 1994). Path analyses have indicated that the psychological distress that is a result of police work tasks has been the most robust antecedent of alcohol use by police officers (Violanti, Marshall & Howe, 1983, 1985).

Of course, contradictory results have been reported. For example, a study of waiters and cooks reported no association between work stress and heavy alcohol consumption (Kjaeheim et al., 1997). In that case, it was the effectiveness of individual coping resources, household type, age and occupation that were the important predictors of overuse of alcohol. In addition, it has been reported that alcohol use has reduced during stressful periods at work (Breslin, O'Keeffe, Burrell, Ratliff-Cain & Baum, 1995).

Changes in the patterns of prescription and illicit drug use have been reported in reaction to the development of occupational stress. For example, increased use of

sedatives and hypnotics has been reported in response to bullying in the workplace (Vartia, 2001). It is evident that the use of both alcohol and non-prescription drugs in response to work stress increases the likelihood of the development of psychiatric morbidity (Graham, Albery, Ramirez & Richards, 2001).

It was evident that female military personnel who reported high levels of occupational stress were 2.5 times more likely than those who reported low stress, and male military personnel 2.3 times more likely to have used illicit drugs in the 12 months prior to assessment (Bray, Fairbank & Marsden, 1999). From this same study, it was evident that the men who experienced highly stressful family or personal relationships were 1.8 times more likely to use illicit drugs whereas there was no association between non-work relationships and illicit drug use among women.

Substance abuse has been demonstrated to be high in work stressed individuals in relation to specific workplace stressors. A questionnaire study of nurses showed substance use was most likely in nurses with greater access to substances in the workplace, who mixed with drug users outside of work, and who reported low levels of religiosity. There was an association between substance use and role strain. There was a direct link between depressive symptomatology and use of substances (Trinkoff, Zhou, Storr, & Soeken, 2000).

Finally, it may be the case that whereas men were more likely to abuse alcohol in response to occupational stress, women may have been more likely to use or overuse psychotropic medication (Brown-Rowat, Amsel & Jeans, 1990; Frone, Cooper et al., 1994).

Other types of substances have been implicated in the occupational stress literature. For example, increased rates of cigarette smoking and caffeine consumption have been reported in response to occupational stress (Conway, Vickers, Ward & Rahe, 1981). The relationships between job stress and smoking, alcohol consumption, and the use of hypnotics and antacids were considered. Among female nurses undertaking shift work, it was evident that the rate of smoking was higher than the general population and that job stress was correlated with smoking (Barak, Achiron, Kimh, Lampi & Schumacker, 1996).

In summary, there is evidence that a relationship between occupational stress and substance use can be sustained although it is recognised that the pattern and type of substance use may differ and that contradictory reports are noted in the literature. These differences may be a function of research methods, sample characteristics, and the nature of the stressor being examined (Bray et al., 1999). The normal limitations of self-report data examining substance use also are recognised. That is, the utility of self-report data about substance use has been questioned in light of the fact that discrepancies between self-report and other types of data collection have been noted (e.g., Poikolainen, Podkletnova & Alho, 2002).

It may be speculated that other factors, such as coping, influence the relationship between occupational stress and substance use. For example, problem drinking was more evident among men who relied on avoidance coping strategies (Cooper, Russell, Skinner, Frone & Mudar, 1992) and women who obtained low scores on a measure of problem-focused coping (Breslin et al., 1995).

8.1.4 Coping

As mentioned previously, the adoption of coping responses and an increase of coping effort in reaction to increased demands and challenges in the workplace are considered to be outcomes following exposure to stressful situations at work. Coping has been defined as the “person’s cognitive and behavioral efforts to manage... the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person’s resources” (Folkman et al., 1986, p.572).

It is evident that the coping strategies selected to deal with the problem situation can be adaptive and effective in reducing the negative effects of exposure to workplace stressors. Alternatively, coping efforts may be maladaptive or ineffective and result in an exacerbation of the negative effects of workplace stressors. Effective coping strategies have been determined to be related to lower levels of anxiety, fewer daily hassles, fewer accidents and injuries in the workplace, and fewer illnesses (Sharpley et al., 1995). The adoption of better coping strategies has been related to enhanced recovery rate (Jenkins, 1997).

It consistently has been reported that problem-focused coping methods are positively related to enhanced well-being (Folkman et al., 1986) although strong effects are rarely reported. Problem-focused coping strategies are characterised by the creation of a plan of action and are focused on solving the problem (Bhagat, Allie & Ford, 1995).

In relation to occupational factors, the use of social support as a coping strategy and the adoption of cognitive behavioural coping strategies have been

associated with reports of lower levels of strain (Decker & Borgen, 1993). Social support coping strategies for dealing with work stress have been demonstrated to be useful for a group of family therapists (Street & Rivett, 1996).

Problem focused coping strategies have been reported to be related to better job satisfaction (Bhagat et al., 1995), improved physical health (Parkes, 1990), and lower levels of depressive and somatic symptomatology (Greenglass & Burke, 1991). However, in some samples (e.g., Biggam et al., 1997), the use of problem-focused coping strategies was not related to the experience of psychological distress.

Emotion-focused coping, although often associated with poorer outcomes (e.g., Felton & Revenson, 1984; Mitchell & Hodson, 1983; Terry, Tonge & Callan, 1995), has been related to fewer and less intense depressive, anxiety and somatic symptoms when used in the workplace (Greenglass & Burke, 1991). Other studies have reported the both problem-focused and emotion-focused coping were reported to be associated with lower levels of psychological distress (Violanti, 1992). In contrast, the use of emotion-focused coping strategies was associated with higher burnout scores (Elliott et al., 1996). It was interesting that coping strategies that normally would be viewed as adaptive, such as taking time away from work or raising issues with a supervisor, would be seen as evidence of the presence of burnout.

A range of positive coping responses to work stress were reported in relation occupational stress among psychiatrists (Rathod et al., 2000). Physical activity, distraction with leisure activities, the use of social support, and religious activities all were reported in response of the experience of occupational stress.

The absence of positive coping strategies, even without the adoption of negative coping strategies, has been associated with increased stress. Lower levels of positive coping strategies such as positive thinking and direct action or problem-solving coping were associated with higher levels of strain among managers who had been declared surplus to requirement in their organisation (Armstrong-Stassen, 1997).

The adoption of certain coping strategies have been associated with better outcomes in other areas. For example, nurses who were able to adapt to their stressful work conditions and reported higher job satisfaction were more likely to use approach coping strategies such as problem orientation, ability enhancement and cognitive restructuring strategies than the nurses who reported lower job satisfaction (Boey, 1998). The use of active coping strategies when dealing with stressful events within the hospital system was related to fewer psychosomatic symptoms and better job satisfaction (Burke & Greenglass, 2000a).

There is evidence for sex differences in the selection of coping strategies. From a study examining coping among correctional officers, it was evident that women were more likely to seek social support as a means of coping with work stress whereas men were more likely to engage in planful problem solving (Hurst & Hurst, 1997). As both of these strategies are seen as positive and effective means of dealing with stress, ultimately there were no differences between the male and female officers in their level of burnout. Although not all studies have demonstrated sex differences (e.g., Friedman, 1996), there have been reports that poorer health

outcomes may be associated with different coping styles in men and women (Theorell, Alfredsson, Westerholm & Falck, 2000).

It is the case that the demands of the work situation may exceed the abilities of the individual to effect change by means of coping. For example, it has been reported that individuals who obtained the highest work-related stress scores, had the poorest coping skills (Fagin et al., 1996). In fact, workers with the highest demands and the lowest coping skills had the most health problems whereas those with high demands but good coping skills had few health complaints (Eriksen & Ursin, 1999). From that study it was suggested that coping strategies were more important in relation to health than were organisational factors.

Avoidance coping strategies generally have been reported to be associated with poorer psychological well-being (Folkman et al., 1986; Rick & Guppy, 1994), more psychosomatic symptoms and poorer job satisfaction (Burke & Greenglass, 2000a). The use of avoidance coping strategies among Thai nurses was associated with elevated levels of occupational stress (Tyson & Pongruengphant, 1996). This relationship was a direct one without evidence of any interactive buffering effect.

Escape-avoidance strategies were reported to be used more frequently by sexual assault counsellors than by a control group of counsellors whose work did not focus on sexual assault (Johnson & Hunter, 1997). The specific strategies adopted included overeating, alcohol, tobacco, and illicit drug and prescription drug consumption, oversleeping, denial and social isolation. These types of strategies may distance the individual from the problem situation but do not function to resolve the problem situation. According to Folkman et al. (1986), adoption of these types

of strategies occurs when the problem is perceived to be one that must be accepted or when the individual feels powerless to change the problem situation.

A range of negative coping responses to work stress were reported in relation occupational stress among psychiatrists (Rathod et al., 2000). In particular, substance use, social isolation, and the expression of negative emotions all were reported as maladaptive means of dealing with work-related stress reactions.

Emotional distancing as a coping strategy was demonstrated to be related to high levels of distress among doctors (Tattersall, Bennett & Pugh, 1999). Psychological disengagement and the use of wishful thinking in response to critical incidents were reported to be related to increased severity of PTSD among ambulance officers (Clohessy & Ehlers, 1999) highlighting the view that lack of emotional processing of distressing memories reduces psychological functioning (e.g., Joseph, Yule & Williams, 1995).

There is little doubt that occupational stress is associated with complex interactions between variables (Hahn, 2000). Coping strategies can be seen as the outcome of exposure to stressful events at work, can influence other outcomes such as job satisfaction, or can influence the relationship between other variables.

8.1.5 Job satisfaction

Changes in levels of job satisfaction have been recognised as a consequence of the experience of work-related stress. A study of Scottish workers indicated that changes from baseline levels of job satisfaction could be accounted for by reports of even low to moderate perceived stress at work (Heslop et al., 2002). In an

investigation of social workers' experiences of occupational stress, it was evident that higher levels of job stress resulted in lower levels of job satisfaction (Gellis, 2001). Of course, influences on job satisfaction can occur separately from the experience of work-related stress. For example, changes in work schedule among human resources managers influenced job satisfaction levels but was unrelated to the experience of work-related stress (Kuang-Jung, 2001).

Reports of job dissatisfaction and somatic complaints occurring in response to workplace stressors have been reported (e.g., Finnøy, 2000; Jimmieson, 2000). Interventions aimed at management of psychophysiological manifestations of stress and distress have resulted in improvements in job satisfaction (e.g., Stein, 2001).

Occupational and job position factors have been reported to influence levels of job satisfaction (Slate, Johnson & Wells, 2000). Employees in higher socio-economic groups have been reported to experience better job satisfaction (Fotinos-Ventouratos & Cooper, 1998). When the factors contributing to this relationship were considered, it was evident that it was the degree of control over work-related matters that improved job satisfaction among people in higher socio-economic groups.

However, it is not the case that all occupational groups that would place employees in a higher socioeconomic bracket were associated with better job satisfaction. Other research has identified job satisfaction differences between general practitioners and white collar workers with the general practitioners experiencing more depression and less job satisfaction (O'Connor et al., 2000). Again, the lower level of job satisfaction was a result of low job control, this time in

combination with high job demands. Further, general practitioners were demonstrated to have poorer job satisfaction than practice nurses (Rout, 1999). There was variation in the level of job satisfaction and work-related stress in a sample of blue collar workers that was related to the influence of personality factors (Mehra & Mishra, 1999).

Clearly, there are factors that enhance or detract from job satisfaction. These factors have been demonstrated to be both personal and psychosocial in nature (Finnoy, 2000; Tokar, Fischer & Subich, 1998). Specific events at work such as violent behaviour have been identified as reducing job satisfaction levels (Leather Beale, Lawrence & Dickson, 1997). Stressors such as patient demands have been reported to negatively influence job satisfaction levels (Lim & Yuen, 1998). A correlation between frequency of harassment in the workplace and job satisfaction was noted in women office workers with a higher frequency of harassment being related to more job dissatisfaction (Piotrkowski, 1998).

Autonomy at work has been demonstrated to improve job satisfaction in Australian general practitioners (Ulmer & Harris, 2002). Both increased autonomy and lower workload were associated with better job satisfaction in a group of nurses (Tummers et al., 2002a). In contrast, autonomy at work was reported to have no association with job satisfaction. When compared with other types of therapists, marital and family therapists were demonstrated to have lower job autonomy and less intention to remain in their present positions despite the lack of difference between groups in the level of satisfaction they obtained from their jobs (Trudeau, Russell, de la Mora & Schmitz, 2001).

In other cases, factors such as control of work tasks has been determined to impact on job satisfaction (Sargent & Terry, 2000), particularly when job demands are high (de Jonge, Bosma et al., 2000). Yet others have reported that work overload and lack of career development were the factors that influenced the level of job satisfaction (Yousef, 2002). Still other reports have indicated that specific stressors such as telephone sexual harassment negatively influenced job satisfaction (Sczensy & Stahlberg, 2000).

Work environment issues have been reported to affect job satisfaction. For example, among female managers, a work climate that was supportive of the balances between work and home was associated with better job satisfaction (Burke, 2001). A workplace that fostered supportive actions and relationships also fostered good job satisfaction. For example, having responsibility for others and supervisor support combined to improve work satisfaction (Goldenhar et al., 1998). Social support for teachers was related to better job satisfaction, particularly supervisor and colleague support (Schonfeld, 2001). Social support in the workplace was considered to influence job satisfaction among traffic enforcement agents whereas social support from family did not (Baruch-Feldman et al., 2002). In contrast, a lack of managerial support was strongly related to low levels of job satisfaction (Bennett, Lowe, Matthews, Dourall & Tattersall, 2001).

The influences on job satisfaction were determined to be different for men and women. For example, the level of job satisfaction of general practitioners was determined to be influenced by working in a rural area and general mental health status for men but was influenced by having to bulk bill all patients and working

full-time for women (Ulmer & Harris, 2002). Others have reported that job satisfaction was influenced more by work environment factors than demographic variables (Lambert, Hogan & Barton, 2001).

Changes in job satisfaction as a consequence of changes in the influence of workplace stressors have been reported. For example, improvement in work stress and job satisfaction were reported following privatisation of one company (Cunha & Cooper, 2002).

There has been a reported relationship between job satisfaction and burnout (Low, Cravens, Grant & Moncrief, 2001). For example, in a study of ambulance personnel (Alexander & Klein, 2001) and residential support workers (Shaddock, Hill & van Limbeek, 1998), burnout was associated with lower job satisfaction. Job satisfaction was the most significant predictor of personal accomplishment in a study of burnout in nurse academics (Cam, 2001). Although job satisfaction predicted all three factors of burnout in a sample of teachers (Koustelios, 2001), emotional exhaustion as a component of burnout was unrelated to job satisfaction in a group of social welfare workers (Wright & Cropanzano, 1998).

There has been a range of factors that influence the relationship between the experience of workplace stressors and the level of job satisfaction. Job satisfaction can remain high even with continued exposure to severe workplace stressors if the benefits or rewards of the job outweigh the costs of exposure to stressful situations (e.g., Demmer, 2002), or some other factor acts to lessen the effect of exposure to stressful work events such as personality variables (Mehra & Mishra, 1999).

For example, examination of the experiences of hotel managers indicated that the relationship between the perception of organisational politics and job satisfaction was influenced by job self-efficacy (Bozeman et al., 2001). In addition, self-efficacy has been identified as a moderator variable in the relationship between perceived control at work and the level of job satisfaction (Jimmieson, 2000).

The way in which a person appraises a situation involving a workplace stressor apart from efficacy beliefs may influence job satisfaction. For example, antisocial behaviour of students was reported to impact on job satisfaction in teachers only if they appraised the antisocial behaviour as threatening (Sinclair, Martin, & Croll, 2002).

Social support has been identified as mediating the relationship between burnout and job dissatisfaction (Um & Harrison, 1998). Further, work environment factors such as supervisor support have been demonstrated to mediate the relationship between the experience of work-related stressors and job satisfaction (Sargent & Terry, 2000). This link between better supervisor support and good job satisfaction has been reported elsewhere (e.g., Baruch-Feldman et al., 2002; Schirmer & Lopez, 2001).

In fact, supervisory style may play an important role in the determination of job satisfaction with a style of providing direction and open communication leading to higher job satisfaction. Further, it has been recognised that work environment factors such as demand/latitude variables or work-role variables may mediate the relationship between supervisory relationships and job satisfaction (e.g., Lobban, Husted & Farewell, 1998).

The response of the individual may influence the relationship between the experience of workplace stressors and job satisfaction. For example, the way in which an individual copes with workplace stressors has been determined to influence job satisfaction levels (Lim, 1999). Active coping by police officers improved job satisfaction following exposure to both workplace and non-work related stressors (Burke, 1998). The ability to maintain high job satisfaction levels in face of high levels of work stress has been reported to be related to approach coping methods in nurses such as adopting a problem solving orientation, ability enhancement and cognitive restructuring (Boey, 1998). In contrast, problem escape coping has been related to poorer job satisfaction (Burke & Greenglass, 2000a).

There clearly are consequences of low job satisfaction. For example, it has been demonstrated that poor job satisfaction has increased the likelihood that an employee will leave a position (Harrington, Bean, Pintello & Mathews, 2001; Swaen, Kant, van Amelsvoort & Beurskens, 2002). Poor job satisfaction has been demonstrated to be a significant contributor to turnover intention in a national sample of US employees (Lambert et al., 2001), whereas high job satisfaction was reported to be related to high employee retention rates among health care professionals (Brown et al., 2002). In general, higher job satisfaction has been associated with higher levels of work commitment (Siu & Cooper, 1998).

In summary, although it has been demonstrated that poor job satisfaction may be a consequence of occupational stress, it also has been reported that changes in job satisfaction may occur without the presence of a stress response to work events.

Nevertheless, low job satisfaction has been shown to be associated with poorer psychological functioning and job-related factors.

8.2 The current study

The present study aimed to examine the group differences in terms of a range of outcome measures. It was hypothesised that the Compensation group would demonstrated the most severe psychological symptoms, the poorest physical health, the most substance misuse, the use of the most maladaptive and ineffective coping strategies when dealing with problems at work, and the lowest level of job satisfaction, followed by the Assistance group, then the Stressed group, and then the No Stress group.

8.3 Method

8.3.1 Participants

The participants were the same group as were described in Study 1.

8.3.2 Materials

The Symptom Checklist-90-R (SCL-90-R) (Derogatis, 1983) was administered to evaluate levels of symptomatology. The SCL-90-R consists of 90 items and assesses a range of psychological symptoms. Participants indicate on a 5 point scale the extent to which they have been distressed or troubled by each symptom within the past seven days. Subscales of the SCL-90-R measure Somatization (S), Obsessive-compulsive(OC), Interpersonal Sensitivity (IS), Depression (D), Anxiety

(Anx), Hostility, Phobic-Anxiety (PA), Paranoid Ideation (PI), and Psychoticism (Psy).

The SCL-90-R also provides a Global Severity Index (GSI), Positive Symptom Total (PST), and a Positive Symptom Distress Index (PSDI). The GSI is a single summary score of the current level of symptomatology that is derived by combining information regarding the number of items endorsed and the degree of distress experienced by the individual. The PSDI provides a measure of perceived distress that is separate from the number of items endorsed. The PST is a measure of the extent of symptomatology by scoring the number of items endorsed by the individual. Seven additional items that are not included in the primary symptom dimensions are included in the calculation of the global indices. The symptoms measured by these additional items are related to multiple symptom dimensions but are not exclusive to any one dimension.

Internal consistency of the nine symptom dimensions ranges from .77 for Psychoticism to .90 for the Depression subscale. This has indicated that symptom items do reflect the measurement dimension or underlying factor. In addition, test-retest reliability has ranged from .80 for the Anxiety subscale to .90 for Phobic Anxiety, indicating stability over time. Convergent and construct validation research has demonstrated that the SCL-90-R is a good measure of current symptomatology (Derogatis, 1983).

The SCL-90-R was designed to provide a measure of 'caseness'. The GSI or two or more dimension scores equal to or greater than a standard score of 63 have been considered to indicate a positive diagnosis or case (Derogatis, 1983).

Job satisfaction was measured by a single VAS measuring global satisfaction with the job. The VAS was anchored with the words "Completely dissatisfied" and "Completely satisfied". The VAS was scored out of 100, with higher scores representing a more positive experience.

The Medical Profile Questionnaire (Mueller, 1996) was administered to collect information relating to physical symptoms which may be associated with levels of stress experienced. Participants completed the sections relating to physical conditions. Symptoms involved those pertaining to heart and lungs, nervous system, abdomen, urinary, blood, bones, skin, glands (endocrine) and a miscellaneous section relating to physical conditions that may not be limited to the above systems. Participants simply indicated for each item whether they had experienced the condition. They also completed the section of the questionnaire relating to substance use. Participants indicated if they had used a range of substances from alcohol, caffeine, cigarettes, and illicit drugs. The nature of this questionnaire has precluded extensive psychometric examination and no published information about the psychometric properties is available.

The Coping Strategies Inventory (Tobin, Holroyd & Reynolds, 1984) was used to identify coping strategies that each participant employed during their stressful work event. The inventory is comprised of 72 items, each being a possible strategy employed during an event. Each participant indicated the extent to which they used the strategy on a five point scale, 1=Not at all, 5=Very much. The inventory provides scores on eight subscales: Problem Solving, Cognitive Restriction, Express

Emotions, Social Support, Problem Avoidance, Wishful Thinking, Self-criticism, and Social withdrawal. A raw score is achieved for each subscale.

In terms of reliability for measuring the coping process, the alpha coefficients for the subscales range from .71 to .94. Test-retest reliability is rarely reported for coping questionnaires as coping demands have been determined to change over time (Tobin et al., 1984). Nevertheless, for the Coping Strategies Inventory, Pearson correlation coefficients range from .39 to .61 ($M=.53$) when individuals have completed the test on two occasions, and have referred to different stressors. The highest Pearson correlation coefficients occur when individuals refer to the same stressful situation (.67 to .83, $M=.73$).

A number of studies have investigated that validity of the Coping Strategies Inventory. The authors of the test demonstrated the factor structure of the test with a hierarchical relationship between the subscales. The test has appropriate criterion validity, discriminating between symptomatic and non-symptomatic samples. Further, the Coping Strategies Inventory has appropriate construct validity, being particularly predictive of depressive symptoms in highly stressful situations (Tobin et al., 1984).

The Personal Strain Questionnaire and the Personal Resources Questionnaire of the OSI (Osipow & Spokane, 1992) were administered as measures of outcome. The Personal Strain Questionnaire provides subscale scores of vocational strain, psychological strain, interpersonal strain and physical strain. An analysis of internal consistency produced an alpha coefficient of .94 for this questionnaire. The Personal Resources Questionnaire provides subscale scores for recreation, self-care,

social support and rational/cognitive coping. The alpha coefficient for internal consistency as a measure of reliability was .99.

A copy of the non-copyright materials are presented in Appendix L.

8.3.3 Procedure

Participants were interviewed and asked to complete the VAS of job satisfaction. Participants completed the remaining scales at their leisure, as part of the questionnaire package. The Coping Strategies Inventory was answered in relation to the stressful work event they experienced and described in Study 4.

8.3.4 Design

A four group questionnaire study was used. The groups were Compensation, Assistance, Stressed and No Stress. The dependent variables were psychological symptomatology, physical health, substance use, coping strategies, and job satisfaction.

8.3.5 Data analysis

Analyses of variances were used to examine between group differences on the dependent variables. In addition, chi-square analyses were used to determine differences between the groups in relation to the physical health and substance use variables. A significant criterion of .05 was adopted.

8.4 Results

ANOVA and chi-square summary tables are presented in Appendix M.

8.4.1 General symptomatology

An assessment of the psychological symptomatology of the four groups was undertaken. Table 28 presents the mean scores and standard deviations of the four groups to the subscales and global indices of the SCL-90-R.

There was a trend towards a significant difference between groups for the Somatisation subscale, $F(3,56) = 2.73, p = .052$. The No Stress group obtained a significantly lower score than the Compensation group (*Fisher LSD* = 9.57, $p < .05$) and the Assistance group (*Fisher LSD* = 9.42, $p < .05$). No other differences were noted.

Significant between group differences were evident for the Obsessive-Compulsive subscale, $F(3,56) = 7.35, p < .0003$. Post hoc analyses indicated that the No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 8.14, $p < .05$), the Assistance group (*Fisher LSD* = 8.01, $p < .05$), and the Stressed group (*Fisher LSD* = 9.67, $p < .05$).

Between group differences were apparent for the Interpersonal Sensitivity subscale, $F(3,56) = 4.86, p < .005$, with the No Stress group scoring significantly lower than the Compensation group (*Fisher LSD* = 7.59, $p < .05$) and the Assistance group (*Fisher LSD* = 7.47, $p < .05$). No other differences were noted.

Comparison of groups on the Depression subscale scores resulted in a significant effect, $F(3,56) = 5.98, p < .002$. The No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 8.57, $p < .05$) and the Assistance group (*Fisher LSD* = 8.44, $p < .05$).

Analysis of the Anxiety subscale scores indicated significant group differences, $F(3,56) = 7.48, p < .0003$. The No Stress group had significantly lower scores than the Compensation group (*Fisher LSD* = 8.53, $p < .05$), the Assistance group (*Fisher LSD* = 8.40, $p < .05$), and the Stressed group (*Fisher LSD* = 10.14, $p < .05$).

There were significant group differences for the Hostility subscale, $F(3,56) = 5.08, p < .004$. Post hoc analyses indicated that the No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 6.78, $p < .05$) and the Assistance group (*Fisher LSD* = 6.67, $p < .05$). No other differences were apparent.

There were group differences for the Paranoid Ideation subscale, $F(3,56) = 4.03, p < .02$. The No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 8.24, $p < .05$) and the Assistance group (*Fisher LSD* = 8.11, $p < .05$).

A group comparison of the scores on the Psychoticism subscale resulted in a significant effect, $F(3,56) = 3.31, p < .03$. The No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 7.38, $p < .05$) and the Assistance group (*Fisher LSD* = 7.26, $p < .05$).

Significant group differences were apparent for the Global Symptom Index, $F(3, 56) = 8.17, p < .0001$. Post hoc analyses indicated that the No Stress Group scored significantly lower than the Compensation group (*Fisher LSD* = 8.21, $p < .05$) and the Assistance group (*Fisher LSD* = 8.08, $p < .05$).

A comparison of group scores on the Positive Symptom Total indicated significant group differences, $F(3,56) = 6.32, p < .0009$. Post hoc analyses demonstrated that the No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 7.09, $p < .05$) and the Assistance group (*Fisher LSD* = 6.98, $p < .05$).

Group scores on the PSDI significantly differed, $F(3,56) = 7.71, p < .0002$. The No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 7.01, $p < .05$), the Assistance group (*Fisher LSD* = 6.90, $p < .05$) and the Stressed group (*Fisher LSD* = 8.33, $p < .05$).

Table 28.

The mean scores and standard deviations for the subscales and global indices of the SCL-90-R for the four groups.

Subscale/index	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Somatisation	60.2	13.5	58.5	17.2	56.2	15.9	47.8	8.8
Obsess-compul.	65.9	12.2	67.8	10.2	60.7	17.4	50.7	9.4
Interpers. Sens.	62.6	12.7	64.8	9.8	59.6	13.3	51.5	9.2
Depression	66.1	13.9	68.4	10.9	60.2	16.9	52.0	9.7
Anxiety	65.7	14.3	61.3	12.0	57.2	15.4	46.7	8.9
Hostility	57.9	11.1	60.0	8.3	53.4	12.9	47.9	8.2
Phobic Anxiety	55.7	10.1	54.9	12.0	53.6	10.8	47.8	8.3
Para. Ideation	62.1	14.5	61.1	11.4	54.2	13.0	49.7	9.1
Psychoticism	62.2	12.5	62.3	11.2	56.2	12.4	52.6	7.0
GSI	66.4	13.1	67.6	10.6	58.7	16.0	49.9	9.4
PST	61.7	9.2	63.4	7.4	55.0	15.2	49.8	10.6
PSDI	63.3	12.3	61.3	8.3	58.9	13.0	48.1	8.0

8.4.2 Health status

The health status of the participants in each group was evaluated. The frequencies with which each physical condition was reported are presented in Table 29. There were very few significant differences between group. When considering the Bones category, back problems did distinguish the groups, $\chi^2(3, N = 56) = 8.48$,

$p < .04$, with the No Stress group being less likely to report this condition. There were significant group differences in relation to joint problems such as pain, swelling, gout or arthritis, $\chi^2(3, N = 56) = 12.56, p < .006$, with the Assistance group being more likely to report these problems and the No Stress group less likely to report them.

Consideration of the Skin category results indicated that there was a between group difference for a change in the pattern or amount of sweating, $\chi^2(3, N = 56) = 9.85, p < .02$. In this case, the Compensation group was more likely than expected to report this problem.

In the Miscellaneous category, there was a trend for a difference between groups in number of participants reporting a noncancerous tumour or growth, $\chi^2(3, N = 59) = 7.43, p = .059$, with the Stressed group being more likely to report this condition.

Table 29.

The percentage of participants in each group reporting each of the physical conditions.

Category	Condition	Comp	Assistance	Stressed	No Stress
Heart and lungs	MI/chest pain	13.3	27.8	28.6	6.2
	Heart murmur	13.3	16.7	14.3	6.2
	Heart infection	0.0	0.0	0.0	0.0
	Irregular beat	26.7	38.9	28.6	18.7
	High BP	33.3	22.2	42.9	6.2
	Low BP	20.0	16.7	14.3	0.0
	Fainting spells	20.0	16.7	0.0	0.0
	Swollen ankles	20.0	11.1	0.0	31.2
	Shortness breath	20.0	5.6	14.3	6.2
	Rapid breathing	13.3	11.1	14.3	0.0
	Lung disease	26.7	27.8	28.6	31.2
	Other	6.7	22.2	0.0	12.5
Nervous system	Headaches	93.3	83.3	85.7	56.2
	Vision problems	40.0	55.6	28.6	50.0
	Hearing problems	20.0	22.2	28.6	12.5
	Balance problems	13.3	33.3	14.3	12.5
	Major infections	6.7	11.1	14.3	6.2
	Loss conscious.	26.7	11.1	14.3	6.2
	No memory	20.0	27.8	14.3	0.0
	Stroke, etc.	0.0	11.1	0.0	0.0
Abdomen	Seizures	0.0	5.6	0.0	0.0
	Gastrointestinal	46.7	66.7	71.4	31.2
	Liver problems	20.0	11.1	14.3	6.2
	Gallbladder probs.	6.7	16.7	0.0	0.0
Urinary	Other	13.3	16.7	0.0	6.2
	Urinary problems	26.7	33.3	28.6	37.5
Blood	STD	0.0	5.6	0.0	0.0
	Anaemia, etc.	33.3	5.6	28.6	6.2
	Blood transfusions	6.7	11.1	14.3	0.0
	Sharing needles	0.0	0.0	0.0	0.0
	Unsafe sex with HIV	0.0	0.0	0.0	0.0
	HIV antibody test	6.7	11.1	14.3	6.2

cont...

Table 29 cont...

Bones	Fractures/dislocation	26.7	44.4	71.2	25.0
	Neck problems	33.3	38.9	28.6	6.2
	Back problems	60.0	61.1	28.6	18.7
	Osteoporosis	0.0	5.6	0.0	0.0
	Joint problems	53.3	55.6	14.3	6.2
	Torn ligaments etc.	13.3	38.9	28.6	18.7
	Dental problems	6.7	16.7	14.3	6.2
Skin	Scars	40.0	55.6	42.9	43.7
	Changes in texture	26.7	5.6	28.6	6.2
	Tattoos	6.7	22.2	14.3	12.5
	Sweating change	46.7	5.6	14.3	12.5
	Skin problems	20.0	50.0	57.1	25.0
	Cosmetic surgery	13.3	0.0	14.3	0.0
Endocrine	Diabetes	0.0	5.6	0.0	6.2
	Thyroid problems	0.0	11.1	0.0	6.2
	Other problems	6.7	0.0	0.0	0.0
	Temp. intolerance	13.3	5.6	0.0	0.0
Miscellan.	Allergies	33.3	22.2	14.3	56.2
	Weight loss	13.3	5.6	14.3	0.0
	Chem. insensitivity	0.0	0.0	0.0	0.0
	Exposure to toxins	0.0	16.7	0.0	0.0
	Cancer	6.7	0.0	0.0	0.0
	Benign tumours	6.7	0.0	22.2	0.0
	Glandular fever	6.7	0.0	11.1	5.9
	Chronic fatigue synd	0.0	0.0	0.0	0.0

8.4.3 Substance use

An examination was made of the nonprescribed substances ingested by participants. Table 30 presents the percentage of participants from each group reporting the use of each of the substances.

A between group comparison indicated a significant result for the use of a pipe or cigar, $\chi^2(3, N = 48) = 8.52, p < .04$, with the Assistance group more likely to use these substances.

Table 30.

The percentage of participants from each group reporting use of each of the substances.

Substance	Comp	Assistance	Stressed	No Stress
Alcohol	90.9	93.7	83.3	100.0
Caffeine	81.8	87.5	100.0	93.3
Cigarettes	54.5	68.7	50.0	60.0
Pipe, cigar, etc.	0.0	37.5	0.0	13.3
Anabolic steroids	0.0	0.0	0.0	0.0
Tranquillisers	9.1	18.7	0.0	13.3
Barbiturates	0.0	6.2	0.0	0.0
Glue sniffing	9.1	0.0	0.0	0.0
Other inhalants	0.0	0.0	0.0	6.7
Marijuana	18.2	37.5	50.0	46.7
Nitrites (poppers)	0.0	0.0	0.0	0.0
MDMA (ecstasy)	0.0	0.0	0.0	0.0
Mescaline (peyote)	0.0	6.2	0.0	0.0
Psilocybin (mushrooms)	9.1	12.5	0.0	13.3
LSD (acid)	9.1	6.2	0.0	6.7
PCP (angel dust)	0.0	0.0	0.0	0.0
Amphetamines (speed)	9.1	12.5	0.0	0.0
Cocaine (crack or free base)	0.0	0.0	0.0	0.0
Heroin (smack)	0.0	0.0	0.0	0.0
Morphine or opium	0.0	0.0	0.0	6.7
IV drug use	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0

8.4.4 Coping Strategies

An analysis was conducted on the ways in which the participants coped with work-related stressors. Table 31 presents the mean scores and standard deviations for the four groups for each of the subscales of the Coping Strategies Inventory.

There was a trend for a difference between groups on the Problem Solving subscale, $F(3,52) = 2.68, p = .057$. In this case, the Stressed group scored significantly lower than the Compensation group (*Fisher LSD* = 0.76, $p < .05$), the Assistance group (*Fisher LSD* = 0.75, $p < .05$), and the No Stress group (*Fisher LSD* = 0.76, $p < .05$).

There was a significant difference between groups for the Cognitive Restructuring subscale, $F(3,52) = 2.92, p < .05$. The No Stress group scored significantly higher than the Compensation group (*Fisher LSD* = 0.59, $p < .05$), the Assistance group (*Fisher LSD* = 0.57, $p < .05$), and the Stressed group (*Fisher LSD* = 0.68, $p < .05$).

There was a significant between group difference for the strategy of seeking social support, $F(3,52) = 3.76, p < .04$. Post hoc analyses indicated that the Assistance group reported using this strategy less than the Compensation group (*Fisher LSD* = 0.63, $p < .05$) and the No Stress group (*Fisher LSD* = 0.63, $p < .05$). No other differences were noted.

Table 31.

The mean scores and standard deviations for the subscales of the Coping Strategies Inventory for the four groups.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Prob. Approach	3.1	1.0	3.2	0.9	2.3	0.9	3.2	0.8
Cog. Restruct.	2.5	0.7	2.5	0.9	2.3	0.6	3.1	0.9
Express Emot.	2.9	0.9	2.2	1.1	2.2	0.6	2.5	1.0
Seek support	2.7	0.8	2.0	0.6	2.5	1.2	3.0	1.0
Prob. Avoid.	1.8	0.5	1.6	0.5	2.1	0.5	1.9	0.8
Wishful think.	2.6	0.7	2.4	1.1	2.8	1.2	2.2	0.7
Self criticism	1.7	0.8	1.9	1.1	2.0	1.2	1.5	0.6
Soc. Withdraw.	2.2	0.7	2.0	0.7	2.0	1.1	1.8	0.7

8.4.5 Occupational Stress Inventory

Table 32 presents the mean scores and standard deviations for the Personal Strain and Personal Resources questionnaire subscales of the OSI. There were significant between group differences for the Vocational Strain subscale, $F(3,56) = 3.55$, $p < .03$. Post hoc analyses indicated that the No Stress group reported less vocational stress than did the Compensation group (*Fisher LSD* = 9.01, $p < .05$) and the Assistance group (*Fisher LSD* = 9.01, $p < .05$).

Differences also were apparent for the Psychological Strain subscale, $F(3,56) = 8.02$, $p < .0002$. Again, the No Stress group scored significantly lower than the

Compensation group (*Fisher LSD* = 7.87, $p < .05$), and the Assistance group (*Fisher LSD* = 7.87, $p < .05$).

Physical Strain subscale differences also were noted, $F(3,56) = 6.61$, $p < .0007$. In this case, the No Stress group scored significantly lower than the Compensation group (*Fisher LSD* = 6.81, $p < .05$), the Assistance group (*Fisher LSD* = 6.81, $p < .05$), and the Stressed group (*Fisher LSD* = 8.12, $p < .05$).

Table 32.

The mean scores and standard deviations for the Personal Strain and Personal Resources Questionnaires of the Occupational Stress Inventory.

Subscale	Comp		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Vocational strain	61.2	13.0	59.0	14.5	58.0	16.5	47.9	10.4
Psychological strain	66.0	11.8	64.0	11.7	56.7	15.4	48.7	8.9
Interpersonal strain	57.7	7.5	56.6	11.7	51.2	18.8	50.6	6.7
Physical strain	61.6	8.7	60.3	11.1	56.4	15.4	48.0	6.4
Recreation	46.0	9.8	41.7	9.0	44.4	13.6	47.9	12.8
Self-care	49.7	11.4	43.1	11.2	39.8	9.6	45.9	8.3
Social support	49.4	11.2	39.1	15.1	42.0	13.7	48.4	12.3
Rational/cog coping	46.9	10.3	45.4	9.9	44.8	8.0	52.0	8.8

8.4.6 Job satisfaction

A group comparison on the rating of job satisfaction indicated no significant differences. Table 33 presents the mean ratings and standard deviations for the job satisfaction scale.

Table 33.

The mean ratings and standard deviations for each group for the job satisfaction scale.

Comp		Assistance		Stressed		No Stress	
M	SD	M	SD	M	SD	M	SD
44.9	36.2	53.6	29.1	47.5	34.5	63.9	31.3

8.5 Discussion

It is apparent that the development of a work related stress reaction can influence a range of areas. The literature has supported this view. When consideration was given to general symptomatology, all three stressed groups had elevated anxiety scores, evidence of obsessive-compulsive symptoms, and were more distressed by their symptoms than was the No Stress group.

Interestingly, there is no evidence of very current literature examining the link between occupational stress and the development of obsessive-compulsive symptoms. In contrast, the development of anxiety as a consequence of exposure to workplace stressors is well established. One of the most commonly reported

psychological symptoms of people attending employee assistance programs for assistance with work related issues has been anxiety (Arthur, 2002). It was not surprising, then, that all of the stressed groups reported significantly more anxiety than the No Stress group. What was unexpected was the fact that there were no statistically significant differences in anxiety levels between the stressed groups.

A range of factors have been reported to contribute to anxiety at work. For example, among employees undertaking computer based office work, it was evident that workload and work pressure, work atmosphere and managerial style, work demands, ergonomic factors and sex (female) contributed to the development of anxiety (Seppaelae, 2001). It was evident from the results of the study presented in Chapter 6 that the groups experienced different work stressors. The wide variety of workplace experiences that have been reported to contribute to anxiety at work would lend support to the proposition that the stressor pathways to anxiety are diverse even when the end result is the same.

All three stressed group reported elevated levels of distress in comparison to the No Stress group. As with anxiety, there were no statistically significant differences between the three stressed groups in their self-reported levels of distress in relation to the symptoms they experienced. Increased psychological distress in the workplace has been linked with factors such as lack of control at work (Alamursula, Vahtera, Kivimaeki, Kevin & Pentti, 2002), interpersonal conflicts at work (Bueltmann et al., 2002), incivility at work (Cortina et al., 2001), and overperformance demands as a result of gender harassment (Parker & Griffin, 2002).

It also has been suggested that the relationship between factors such as high demands and support-constraints and psychological distress is mediated by personal factors such as trait anxiety (Morrison & Payne, 2001). Therefore, in this conceptualisation, it is not the experience of the workplace stressor that is problematic but the way in which the person either interprets or reacts to the event. This view has been supported by research examining the influences of appraisal of stressful situations (e.g., Portello & Long, 2001). This type of explanation is in keeping with the model outlined by Berry (1998) in that recognition is made of the extraneous influences on the relationship between the work stressor and the outcome. Indeed, if psychological distress is poorly managed, the impairment of functioning can be considerable (O'Connor, 2001). There are factors, such as skills training, that have been demonstrated to moderate levels of psychological distress among specific employee groups (e.g., Goddard, Patton & Creed, 2001). However, it should be noted that psychological distress may occur even in the absence of trait anxiety and when job satisfaction is satisfactory (Winefield & Jarrett, 2001).

It is clear that the experience of psychological distress can have negative influences beyond momentary discomfort. It has been speculated that ongoing psychological distress has been related to poorer long-term physical health outcomes (Vitaliano, Scanlan, Zhang, Savage & Hirsch, 2002) as well as the obvious psychological disturbance.

Both the Compensation and Assistance groups were distinguished from the other groups on the basis of their higher scores for interpersonal sensitivity, depression, hostility, paranoid ideation and psychoticism as well as the Global

Symptom Index and the frequency of symptoms. In no case were the Compensation and Assistance groups different from one another on these dimensions.

Interpersonal sensitivity has been reported to be evident among nurses with greater work-related demands (McLaughlin & Erdman, 1992). There is evidence in the literature that interpersonal sensitivity is more apparent among female employees irrespective of the demands placed on them (e.g., Stuart & Halverson, 1997). However, with the Assistance group being comprised of more males than females in contrast to all other groups including the Compensation group, and the levels of interpersonal sensitivity being comparable for the Assistance and the Compensation groups, it is unlikely that a sex difference influence is in operation here. Alternatively, the level of interpersonal sensitivity and/or the degree of stress experienced by the Assistance group may have overridden the influence of the propensity for females to report more interpersonal sensitivity.

In contrast to the small amount of research relating to interpersonal sensitivity, depression has been well established in the literature as a consequence of exposure to work stressors (e.g., Tyssen & Vaglum, 2002). Indeed, it has been suggested that the extent of depression in the workplace has been underestimated because the symptoms have been labelled as a normal manifestation of work 'stress' (Arthur, 2002).

Depression has been identified as a consequence of factors such as high demand-low control work environments (Pelfrene et al., 2002; Tsutsumi, Kayaba et al., 2001), effort-reward imbalance and overcommitment (Tsutsumi, Kayaba et al., 2001), and work-family conflict (Grant-Vallone & Ensher, 2001). However, it was

interesting to note that it was a moderate level of stress at work that was associated with a reduced likelihood of the development of depressive symptoms rather than a low or high level of stress (Sharma et al., 2001). It may be that the Compensation and Assistance groups could be considered to fall into the high stress category.

Hostility as part of a pattern of interpersonal conflict at work would be evident. It is clear from the literature that the experience of interpersonal conflict at work results in a range of negative outcomes including psychological morbidity (e.g., Frone, 2000; Lin & Lai, 1995; Peeters et al., 1995; Rainey, 1995). In addition, hostility has been identified as one factor that increases the vulnerability to the development of coronary heart disease (Smith & Ruiz, 2002; Vitaliano et al., 2002). In keeping with the difficulties that would flow from interpersonal problems at work, paranoid ideation may be considered a manifestation of the suspiciousness that would result from disturbed relationships with colleagues, supervisors and the organisation.

When considering clinical significance, different patterns were evident. The symptom patterns that differentiated the groups indicated that the Compensation group was characterised by clinically elevated levels of anxiety and clinically significant distress, whereas the Assistance group reported more interpersonal sensitivity and a greater number of psychological symptoms. It has been reported that clinically significant levels of anxiety and other psychological symptoms may be under reported or masked by the mislabelling of these symptoms as normal manifestations of stress in the workplace (Arthur, 2002). With regard to interpersonal sensitivity, other studies of occupational groups have reported elevated

symptom levels but sub-clinical presentations (e.g., McLaughlin & Erdman, 1992). The fact that the symptoms of the Assistance group were severe enough to warrant help-seeking behaviour distinguishes these functioning samples in the other research from the dysfunctional or poorly functioning Assistance group in the current sample.

There is a strong link in the literature between the experience of stress at work and the development of somatic symptoms (e.g., Shaw & Gupta, 2001) with somatic complaints being influenced by both personal and psychosocial factors (Finnoy, 2000). However, despite this reported association, there were very few differences between groups on the health related outcomes measured in this study. The reported excessive sweating of the Compensation group fits with the generally elevated anxiety they experienced, but few other remarkable differences were noted. In addition, all of the stressed groups had comparable levels of physical strain. Interestingly, it has been reported in other samples that somatic symptoms did not differentiate high and low stress groups (e.g., Bekker, de Jong, Zijlstra & van Landeghem, 2000). Rather, cognitive and emotional factors were implicated as the variables that distinguished groups. Further, the lack of distinction between groups in relation to substance use has been reported elsewhere with no association between reported between smoking, alcohol use and drug use and psychological strain among correctional officers (Dollard et al., 1998).

It is evident that work-related challenges lead to coping efforts. There was a tendency for the Stress group to use problem solving as a coping strategy less often than the Compensation, Assistance and No Stress groups. For the Compensation and Assistance groups, seeking assistance may be seen as a problem-solving strategy

that is an adaptive, positive way of coping with work stress problems. The Stressed group did not act in this way.

Problem-solving coping has been associated with active coping strategies, the ability to suppress competing activities, planning, the use of restraint and the use of instrumental social support (Bishop et al., 2001). This style of coping has been associated with better job satisfaction (Dvash & Mannheim, 2001) and interventions based on problem-solving techniques have been demonstrated to improve decision authority, increase the use of social support, improve role harmony, provide a better learning climate, decrease work-related stress, and moderate psychological job demands (Mikkelsen, Saksvik & Landsbergis, 2000).

All three of the stressed groups used cognitive restructuring as a strategy for dealing with stressful events at work less than did the No Stress group. This was despite the fact that comparable levels of cognitive coping resources were noted in Chapter 4. In general, the use of cognitive restructuring has proven useful in enhancing effective coping (e.g., Silverman, 2002) and managing psychological symptomatology (e.g., Grey, Young & Holmes, 2002). However, it is necessary to be able to systematically apply the principles of cognitive restructuring to be able to benefit from its implementation. It would appear that when confronted with stressful work experiences, the stressed groups were unable to reduce the effects of the stressors by using cognitive restructuring. That is, the demands of the work-related situations may have exceeded the capacity to apply this type of coping strategy.

The Assistance group was less likely to seek social support as a means of coping with workplace stressors, despite similar social coping resources as the other

groups. This may reflect a general lack of support within the workplace for the Assistance group. It has been demonstrated, for example, that poor supervisory support is both directly and indirectly related to the development of negative psychological outcomes (Kalliath & Beck, 2001), and co-worker support has been demonstrated to be protective for female employees (Bueltmann et al., 2002).

The Compensation group was more likely than the Assistance group to seek social support to cope with work-related problems. It may be that the support offered by family and friends reinforced the decision to seek workers' compensation or it may be that supervisory support in the workplace made it more acceptable to lodge a claim. Indirect support for this proposition can be found in the literature that indicated that immediate supervisor support enhanced job satisfaction and increased productivity but was unrelated to symptoms of burnout (Baruch-Feldman et al., 2002). Therefore, psychological symptomatology can develop and need to be addressed even when supervisor support is present. Although there is evidence of a buffering effect of social support (e.g., Karasek & Theorell, 1990), it has been reported that organisational support does not moderate the relationship between work stress and outcome although there has been demonstrated to be a direct relationship between organisational support and individual well being (Dobrevá-Martinova et al., 2002) suggesting that well being can be influenced separately from other factors.

When consideration was given to work-related outcomes, it was clear that the Compensation and Assistance groups reported the most vocational strain. Vocational strain has been determined to be negatively influenced by work-related

self-efficacy (Matsui & Onglatco, 1992). Although not measured in this study, the demonstrated inability of the Compensation and Assistance groups to withstand the pressures associated with their experiences with work-related stressors could be postulated to have reduced their self-efficacy beliefs to a point when vocational strain would develop. It has been reported that self-efficacy beliefs are influenced by experiential factors (e.g., Bandura, 1982).

No group differences were noted for job satisfaction despite the strong association in the literature between the experience of stress at work and reductions in job satisfaction (Cunha & Cooper, 2002; Tummers et al., 2002a). Of course, it has been demonstrated that changes in job satisfaction may occur without changes in the level of work stress (Kuang-Jung, 2001). It could be argued that changes in work stress may occur without changes to job satisfaction. It clearly is the case that some jobs that are considered to be highly stressful, such as working with AIDS sufferers, are also associated with high satisfaction levels because of the rewards that are associated with the job (Demmer, 2002).

Further, the lack of differentiation between the groups in relation to job satisfaction may reflect the way in which job satisfaction was measured. For this study, job satisfaction was considered as a global construct. However, job satisfaction may be broken down into satisfaction with particular work domains such as pay satisfaction (e.g., Browne, Warnock & Boykin, 2000). It may be that certain domains would be more affected by the experience of work stress than other domains. Those domains that remain unaffected may elevate the overall global rating of satisfaction.

In addition, despite the argument that work environment factors are more important than personal or demographic factors in influencing job satisfaction (Lambert et al., 2001), it has been reported that job satisfaction can be accounted for by factors that are separate to work stressors. For example, it has been reported that factors such as the achievement striving and impatience/irritability components of Type A personality have a stronger influence on job satisfaction (Day & Jreige, 2002). Therefore, job satisfaction may not be a direct result of experiences in the workplace, but is determined by the personal perceptions of the individual in the workplace.

However, when rank ordered, the lowest levels of job satisfaction was experienced by the Compensation group, followed by the Stressed group, and the Assistance group with the No Stress group experiencing the highest level of job satisfaction. Only the Assistance group and the No Stress group rated their job satisfaction in the positive range. It may be the generally higher level of job satisfaction that allowed the Assistance group to persevere at work with professional help. Support from this proposition comes from research that has indicated that job satisfaction plays a mediating role between work stressors and organisational commitment (Yousef, 2002). In contrast, the strong job dissatisfaction of the Compensation group may have removed the constraints on lodging a workers' compensation claim.

In summary, the outcome variables that most consistently distinguished the groups and might help explain the different choices made by the groups for managing their stress responses at work related to psychological symptomatology

and the use of specific coping strategies to deal with work stress. There was little impact in terms of group differentiation of physical health or job satisfaction.

CHAPTER 9

INFLUENCE ON OUTCOMES

9.1 Introduction

There is much evidence to suggest that the experience of specific and global workplace stressors can lead to the development of a range of negative outcomes (e.g., Tyssen & Vaglum, 2002). However, it also is the case that other variables can impact on the relationship between stressor and outcome leading either to an exacerbation of the poor response or an amelioration of the effect.

9.1.1 Psychological distress

Psychological distress has been identified in a number of studies to be a consequence of exposure to workplace stressors (e.g., Jacobsson, Pousette & Thylefors, 2001). Some studies have been concerned with the specific predictors of this outcome. A range of workplace stressors were identified as contributing to the experience of occupational stress among physicians (Linzer et al., 2002) including working in solo practice, excessive number of hours worked, time pressures at work and the demands of complex and difficult patients. For nurses, negative mood was predicted by the presence of a range of stressful work experiences such as lack of management support, the need to make time pressured decisions and lack of recognition by their employer (Bennett et al., 2001).

When sleep disturbance is taken as a sign of psychological distress, critical incidents at work have been reported to contribute to disturbed sleep as did both organisational and administrative stressors (Neylan et al., 2002).

For women police officers, gender harassment at work was predictive of overperformance demands which were hypothesised to be associated with

psychological distress (Parker & Griffin, 2002). Role conflict, role overload and role ambiguity were significant predictors of tension among sales associates and managers (Wolden & Good, 1995).

A range of personal variables have been identified that contribute to the development of psychological distress as a consequence of workplace experiences (e.g., Moyle & Parkes, 1999). It has been reported that psychological distress and mental health problems at work can be predicted by personal variables such as the presence of particular personality traits (Tyssen & Vaglum, 2002), the use of coping resources (Mak & Mueller, 2000), and style of coping (Baker & Williams, 2001). Trait anxiety among Australian public sector employees has been reported to predict the development of psychological distress at work (Morrison & Payne, 2001). Type A behaviour predicted burnout in teachers and school administrators (Burke & Greenglass, 1995a). Lack of perceived control at work was related to psychological distress along with a number of other variables in female municipal employees in Finland (Ala Mursula et al., 2002) and was related to psychological distress among employees in the manufacturing industry (Marshall et al., 1997).

When predicting poor psychological functioning among medical professionals, it was apparent that the perceived emotional pressures at work, along with a range of specific stressors such as overwork and working in an intensive-care setting, were related to the development of psychological distress (Tyssen & Vaglum, 2002).

The experience of occupational stress among teachers of children with emotional and behavioural disorders was contributed to by a range of variables related to working conditions (Nelson, Maculan, Roberts & Ohlund, 2001). In

particular, poor principal-teacher relationship, the nature of other working relationships and, most importantly, the opportunity to contribute to the decision making process were related to occupational stress levels in that sample. Poor supervisor trust contributed to the development of occupational stress among detention care workers (Liou, 1995). Lack of supervisor support provoked anxiety responses among teachers (Sud & Malik, 1999).

The conflict between the demands of work and family roles has been reported to contribute to the development of psychological wellbeing in the long term (Grant-Vallone & Donaldson, 2001). Stressful events at work such as interpersonal and organisational change predicted greater ambulatory blood pressure among British general practitioners (O'Connor et al., 2001).

In summary, a range of variables have been identified that have predicted the development of psychological distress among employees. The contributors have included specific work stressors such as critical incidents and time pressured decision making, as well as more general stressors such as role ambiguity and role conflict. In addition, particular personal contributors such as personality traits or style of coping have also been identified as predictors of the development of psychological distress at work.

9.1.2 Job satisfaction

There is literature to support the proposition that exposure to work stressors is predictive of poor job satisfaction (e.g., Cooper, Clarke & Rowbottom, 1999; Lobban et al., 1998; Siu, Cooper & Donald, 1997). When considering the work-

related stressors that predicted poor job satisfaction among Australian general practitioners, it was evident that there were sex differences (Ulmer & Harris, 2002). Lower job satisfaction among male general practitioners was predicted by the experience of having to work in an urban area. For women, lower job satisfaction was predicted by having to bulk-bill (making a consolidated claim to Medicare which is the Australian government health fund) and working full-time. Dissatisfaction with salary, lack of promotion opportunities and poor intrinsic job satisfaction were related to the intention to leave the air force (Harrington et al., 2001).

Occupational role stress has been reported to predict levels of job satisfaction (e.g., Dobрева-Martinova et al., 2002). Role ambiguity was the best predictor of job dissatisfaction among radiographers (Rutter & Lovegrove, 1995) and among life specialists (Munn, Barber & Fritz, 1996).

Levels of control in the workplace have been related to job satisfaction (e.g., Cooper et al., 1999; Fotinatos-Ventouratos & Cooper, 1998; Lim, 1999; Sargent & Terry, 2000). Although it is generally understood that low levels of control in face of high demands has a detrimental effect, it was determined that job dissatisfaction among administrative personnel was predicted by excessive control characterised by high perceived job control and high levels of internal locus of control, particularly in cases where social support also was high (Rodriguez, Bravo, Peiro & Schaufeli, 2001).

Satisfaction with the environment at work has been reported to be the best predictor of job satisfaction in general (Siu, Donald & Cooper, 1997). With turnover

intention taken as a sign of poor job satisfaction, factors within the work environment were related to the intention to leave the job among Singaporean nurses (Fang, 2001). Specifically, lack of organisational commitment and dissatisfaction with supervision were the two factors that contributed to the intention to leave the job.

In summary, job satisfaction has been demonstrated to be predicted by a range of specific and general work stressors such as role ambiguity. The extent to which employees have a sense of control in the workplace has been determined to contribute to job satisfaction as have environmental factors.

9.1.3 Coping responses

Some consideration has been given to coping as an outcome of occupational stress (e.g., Mearns & Mauch, 1998) although more consideration has been given to coping as a predictor of the outcome (e.g., Baker & Williams, 2001; Mitchell & Hastings, 2001) or as a buffering variable (e.g., Day & Livingstone, 2001; Hastings & Brown, 2002; Maurier & Northcott, 2000; Sears et al., 2000).

It was evident from one study that although the presence of anger at work was related to high levels of psychological distress, the ability to regulate negative emotion was related to lower levels of psychological distress and the use of adaptive coping strategies among police officers (Mearns & Mauch, 1998). When considering possible responses to restructuring, the hopeful and obliging participants were the ones most likely to use better, active coping strategies to deal with the stress associated with the experience of workplace restructuring whereas the more

cynical participants used more escape coping strategies (Burke, 2001b). Others suggested that it is not work-related factors that predict the use of specific coping strategies, but demographic factors (Gianakos, 2000).

In summary, coping has more often been considered to be a factor that predicts outcome rather than an outcome variable. Nevertheless, the small amount of literature that does recognise that coping strategies can be considered to be an outcome variable has identified specific psychological states as being predictive of the adoption of particular styles of coping.

9.2 The current study

The current study aimed to examine the factors from Berry's model and considered in this investigation that contributed to the outcomes of psychological distress, job satisfaction, and adoption of a range of negative and positive, problem-focused and emotion-focused coping strategies.

9.3 Method

9.3.1 Cases

All cases with full data sets ($n=37$) were considered in these regression analyses. Sixty-two cases were included in the logistic regression. The number of cases was increased by the use of a missing data substitution programme (mean of series as replacement) provided by SPSS.

9.3.2 Variables and data analysis

The number of variables needed to be reduced to perform a series of stepwise regression analyses. Variables were selected from each component of the model and were used to predict a selection of outcome variables. Although it is recognised that more sophisticated statistical procedures such as path analysis or structural equation modelling could be appropriately applied to the examination of these data, the limited number of cases precluded their use.

The statistical procedure first forced into the analyses a score for the severity of work stressors for each individual. This was done because the assumption was made that the exposure to work stressors would contribute to the development of a range of responses. Other variables were then considered and added in a stepwise format.

Outcome variables

Separate stepwise regression analyses were performed on a range of outcome variables. The PSDI index of the SCL-90-R was selected as a representation of psychological distress or psychological functioning. Negative and positive, problem-focused and emotion-focused coping strategies were selected. Individual regression analyses were performed for the coping strategies of problem solving, express emotions, problem avoidance and wishful thinking. Finally, job satisfaction was selected as a work-related outcome variable.

Personal influences. The DAS score was used as a measure of dysfunction thinking, and a composite or total score was calculated for the Beliefs Inventory to represent the degree of irrational thinking. All of the subscale scores from the Coping Resources Inventory were included in the analyses.

Environmental influences. All subscales of the WES were entered into the analyses as was the major life stressor score for each participant. As a measure of stressors external to work, the Stressful Life Events Scale score was included.

Nature of the stressful event. A single score was used in the analyses by calculating a grand mean of the individual stressor category severity scores.

Reaction to the stressful event. As single measures of psychophysiological and psychological reaction to the stressful work event, the difference was calculated between the stressful work event and the neutral event at the incident stage for heart rate and the psychological VAS ratings of relaxed-tense.

9.4 Results

Multiple regression analyses were performed to determine the contributors to the outcomes of work stress. In each case, the nature of work stress score was entered initially and then followed by all other potentially contributing variables using stepwise regression. This was done to determine the extent to which the experience of stressful experiences at work contributed to the outcome variables and,

secondly, to determine to what extent the other factors outlined in Berry's model added to the prediction of the outcome. A test of skewness indicated no need to adjust the data.

In addition, a logistic regression analysis using a backward-conditional stepwise method was used coding workers' compensation status (0=no workers' compensation claim, 1=worker's compensation claim) as a binary dependent variable. This analysis was conducted to determine the variables that contributed to the lodging of a workers' compensation claim.

A correlation matrix of the variables used in the regression analyses is presented in Appendix N.

9.4.1 Analysis 1 – psychological distress

The results of the first analysis indicated that the experience of work stressors accounted for 23% of the variance in the prediction of psychological distress, $F(1,36) = 10.89, p = .002$. In addition, using the stepwise procedure, dysfunctional attitudes contributed an additional 11% of the variance and work environment clarity contributed 10% of the variance. The variance accounted for in the final model was 67%. Table 34 presents the results of the hierarchical regression analysis for the variables predicting psychological distress. All other variables did not contribute significantly to the prediction of psychological distress.

Table 34.

Summary of the hierarchical regression analysis for variables that predict psychological distress.

Variable	B	SE B	β
Step 1			
Work stressor	2.56	.78	.48
Step 2			
Work stressor	2.32	.73	.44
Dysfunctional attitudes	0.16	.07	.33
Step 3			
Work stressor	1.63	.74	.31
Dysfunctional attitudes	0.16	.06	.32
WES-clarity	-0.22	.09	-.34

9.4.2 Analysis 2 – problem solving coping

The results of this analyses indicated that the experience of work stressors significantly contributed to the adoption of problem solving coping, $F(1,34) = 4.60$, $p = .04$, accounting for 34% of the variance. No other variables contributed to the prediction of the adoption of problem solving coping. Table 35 presents the results of the hierarchical regression analysis for predicting problem solving coping.

Table 35.
Summary of the hierarchical regression analysis for variables that predict problem solving coping.

Variable	B	SE B	β
Step 1			
Work stressor	0.15	.07	.34

9.4.3 Analysis 3 – express emotions coping

The results of this analysis indicate that the experience of work stressors significantly contributed to the express emotions coping outcome, $F(1,34) = 7.61, p = .009$, accounting for 18% of the variance. Additionally, using the stepwise procedure, physical coping resources, work environment peer cohesion, work environment involvement, and work environment clarity also contributed to the prediction of express emotions coping and accounted for an additional 17%, 13%, 8% and 7% of the variance, respectively. The variance accounted for in the final model was 62%. Table 36 presents the results of the hierarchical regression analysis for expressing emotions coping.

Table 36.

Summary of the hierarchical regression analysis for variables that predict express emotions coping.

Variables	B	SE B	β
Step 1			
Work stressor	0.21	.08	.43
Step 2			
Work stressor	0.19	.07	.38
CRI-physical		.02	.41
Step 3			
Work stressor	0.26	.07	.52
CRI-physical		.01	.48
WES-peer cohesion		.01	.39
Step 4			
Work stressor	0.23	.07	.45
CRI-physical		.20	.45
WES-peer cohesion		.01	.48
WES-involvement		.01	-.31
Step 5			
Work stressor	0.20	.06	.40
CRI-physical		.02	.40
WES-peer cohesion		.01	.56
WES-involvement		.01	-.30
WES-clarity		.01	-.29

9.4.4 Analysis 4 – problem avoidance coping

The results of this analysis indicated that the experience of work stressors accounted for 9% of the variance in the prediction of problem avoidance coping, $F(1,34) = 4.47$, $p = .04$. In addition, using the stepwise procedure, spiritual/philosophical coping resources and emotional coping resources contributed

an additional 10% and 13% of the variance, respectively. The variance accounted for in the final model was 59%. Table 37 presents the results of the hierarchical regression analysis for the variables predicting problem avoidance coping. All other variables did not contribute significantly to the prediction of psychological distress.

Table 37.

Summary of the hierarchical regression analysis for variables that predict problem avoidance coping.

Variable	B	SE B	β
Step 1			
Work stressor		.04	.34
Step 2			
Work stressor		.04	.32
CRI-spiritual/philosophical		.01	.32
Step 3			
Work stressor		.04	.25
CRI-spiritual/philosophical		.01	.44
CRI-emotional		.01	-.39

9.4.5 Analysis 5 – wishful thinking coping

The results of the this analysis indicated that the experience of work stressors accounted for 16% of the variance in the prediction of wishful thinking coping, $F(1,33) = 6.30, p = .02$. In addition, using the stepwise procedure, psychological reaction to the stressful work event contributed to an additional 22% of the variance. The variance accounted for in the final model was 61%. Table 38 presents the results of the hierarchical regression analysis for the variables predicting wishful

thinking coping. All other variables did not contribute significantly to the prediction of wishful thinking coping.

Table 38.

Summary of the hierarchical regression analysis for variables that predict wishful thinking coping.

Variable	B	SE B	β
Step 1			
Work stressor	0.17	.07	.39
Step 2			
Work stressor	0.12	.06	.29
Psychological reaction		.01	.48

9.4.6 Analysis 6 – job satisfaction

The results of this analysis indicated that the experience of work stressors accounted for 6% of the variance in the prediction of job satisfaction, $F(1,33) = 3.05$, $p > .05$. This contribution was not significant. However, psychological reaction, social coping resources, work environment work pressure, and work environment involvement significantly contributed 16%, 16%, 8% and 6% of the variance, respectively. The variance accounted for in the final model was 52%. Table 39 presents the results of the hierarchical regression analysis for the variables predicting job satisfaction. All other variables did not contribute significantly to the prediction of job satisfaction.

Table 39.

Summary of the hierarchical regression analysis for variables that predict job satisfaction.

Variable	B	SE B	β
Step 1			
Work stressor	-4.39	2.51	-.29
Step 2			
Work stressor	-2.85	2.36	-.19
Psychological reaction	-0.57	.20	-.43
Step 3			
Work stressor	-1.52	2.16	-.10
Psychological reaction	-0.51	.18	-.39
CRI-social	1.56	.52	.42
Step 4			
Work stressor	-1.39	2.01	-.09
Psychological reaction	-0.46	.17	-.36
CRI-social	1.75	.49	.47
WES-work pressure	-0.58	.24	-.30
Step 5			
Work stressor		1.99	-.01
Psychological reaction	-0.48	.16	-.37
CRI-social	1.72	.47	.46
WES-work pressure	-0.82	.25	-.44
WES-involvement	0.59	.27	.31

9.4.7 Analysis 7 – logistic regression analysis

The results of this analysis indicated that after Step 25, two variables remained in the equation; physical coping resources and psychological distress. Only psychological distress significantly contributed to the lodging of a workers' compensation claim ($p=.022$). Although allocation on the basis of the absence of intense psychological distress to the group who did not lodge a workers'

compensation claim was accurate in 95.6% of cases, the presence of psychological distress predicted workers' compensation group membership only in 29.4% of cases.

The results of Step 1 and Step 25 of this model are presented in Table 40.

Table 40.

Summary of the logistic regression analysis using backward-conditional stepwise method to predict lodging of a workers' compensation claim.

Variable	B	SE B	Wald	df	p
Step 1					
Dysfunctional attitudes	-.05	.03	1.9	1	.17
Irrational beliefs	-.08	.06	1.7	1	.20
CRI-emotional	-.17	.10	3.2	1	.07
CRI-spiritual	-.09	.09	0.9	1	.33
CRI-physical	.31	.14	5.3	1	.02
CRI-cognitive	-.12	.13	0.8	1	.37
CRI-social	.16	.10	2.6	1	.11
Stressful life events	.00	.00	1.2	1	.27
WES-involvement	.11	.06	3.4	1	.07
WES-peer cohesion	-.02	.05	0.2	1	.62
WES-staff support	.02	.06	0.1	1	.78
WES-autonomy	.03	.05	0.3	1	.57
WES-task orientation	.00	.05	0.0	1	.99
WES-work pressure	.01	.04	0.1	1	.82
WES-clarity	-.09	.07	1.5	1	.21
WES-control	.12	.08	2.6	1	.10
WES-innovation	-.05	.04	1.5	1	.22
WES-physical comfort	-.00	.03	0.0	1	.89
Psychological distress	.11	.06	3.4	1	.06
CSI-problem approach	-.17	.66	0.1	1	.80
CSI-express emotions	.46	.68	0.4	1	.51
CSI-problem avoidance	1.03	1.46	0.5	1	.48
CSI-wishful thinking	.67	.86	0.6	1	.44
Job satisfaction	-.01	.02	0.2	1	.64
Work stressor	.05	.30	0.0	1	.85
Psychological reaction	-.00	.03	0.0	1	.90
Step 25					
CRI-physical	.10	.05	3.7	1	.06
Psychological distress	.07	.03	5.2	1	.02

9.4.8 Summary

Figure 27 presents a visual representation of the results of the multiple regression analyses and the results of the logistic regression analysis.

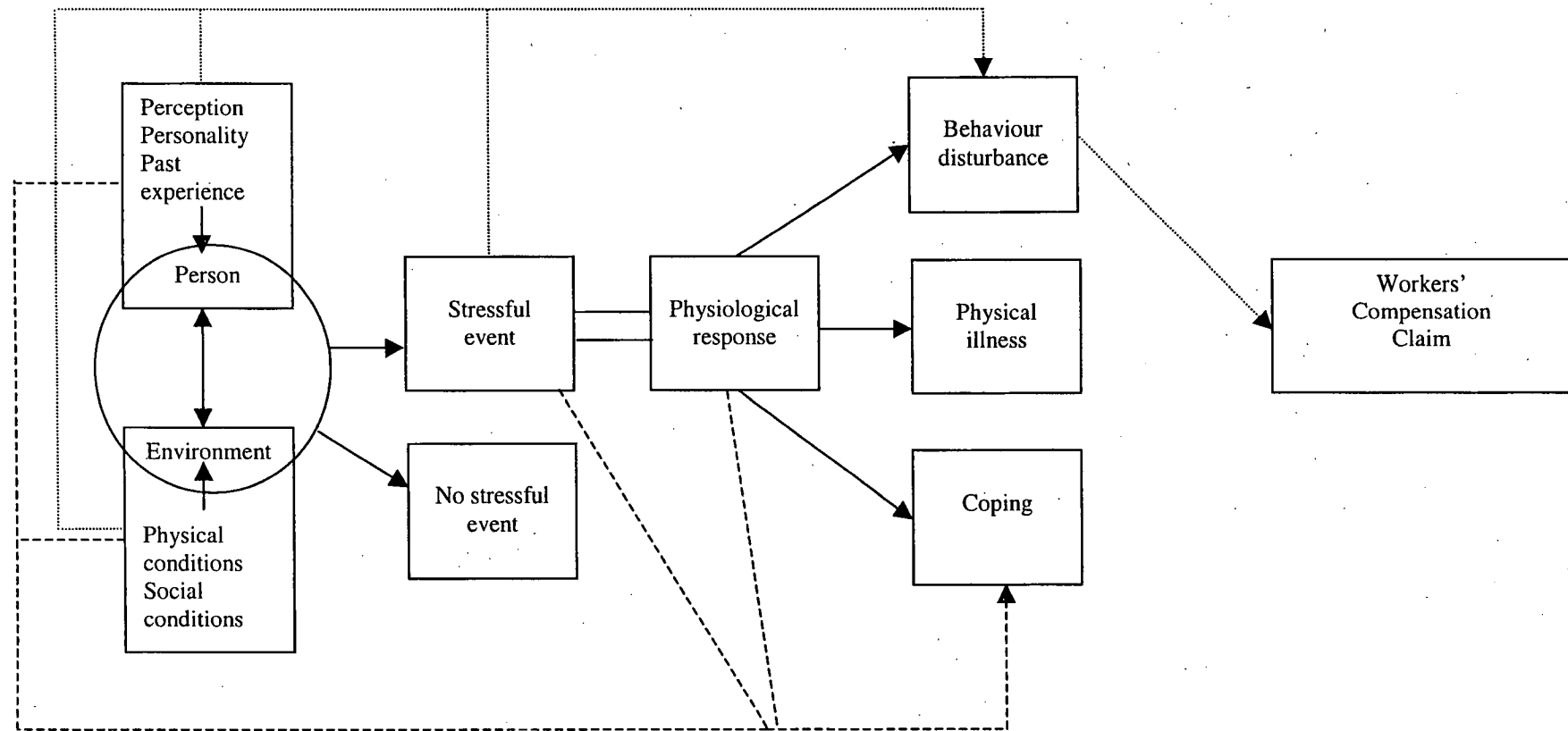


Figure 27.

The visual representation of the results of the multiple regression and logistic regression analyses as they relate to Berry's model.

9.5 Discussion

The results of the first analysis indicated that the experience of workplace stressors contributed to the development of psychological distress. This already has been well documented in the literature (e.g., Bourbonnais et al., 1996). However, it was also evident that greater endorsement of dysfunctional attitudes significantly contributed to the experience of psychological distress as a result of exposure to workplace stressors. This result is in keeping with research indicating that holding these types of dysfunctional attitudes predisposes people to feelings of distress when exposed to situations outside the individual's control or situations that do not fit with the person's view of the world (Thompson & Williams, 1995). Therefore, it is evident that the view the individual takes of the stressful work event or their interpretation of the circumstances increases the negative response over and above the objective experience of the stressful situation in the workplace.

This seems to be particularly problematic for people when the work environment lacks clarity. Ambiguity in the workplace has received considerable attention in the literature (e.g., Noer, 1993) and has been identified as predictive of the development of psychological distress (e.g., Manlove, 1993, 1994). The combination of the presence of dysfunctional conditions and lack of clarity when exposed to stressful work situations, whatever their nature, would make it difficult for the individual to control stress responses and psychological distress would develop.

When considering the factors that contribute to the adoption of adaptive, problem solving coping strategies to deal with work stressors, it was only the occurrence of such a stressor that predicted the use of such coping strategies and no other variable added to that contribution. Therefore, when faced with a stressful situation at work, the situation itself is sufficient to trigger a problem-solving response irrespective of any other factor in operation at the time. Due to the direct link between stressor and adaptive coping strategy, it may be appropriate to target problem solving coping as a focus for intervention.

The picture that emerged in relation to expressing emotions as a coping strategy was different to the problem-focused coping previously mentioned. It was also the case here that the experience of workplace stressors predicted the adoption of expressing emotions as a coping strategy. However, a number of other variables contributed to this relationship. Firstly, those people who had better physical coping resources were more likely to adopt an expressing emotions coping strategy to deal with stressful conditions at work. Although there is no straightforward reason why this may be the case, it could be postulated that good physical health, in a sense, allows for the luxury of expressing emotions without having to consider physical concerns. That is, if the focus, by necessity, must be on physical integrity at a time of high stress, then the latitude one has to express one's emotions may be reduced.

The adoption of an emotional style of coping strategy also was predicted by high levels of peer cohesion at work. The outcome of close and supportive relationships within the workplace may provide an appropriate atmosphere for sharing concerns and feelings. The finding that less work involvement also was

related to expressing emotions fits with this explanation. If an individual does not feel particularly connected to the workplace, the freedom to express his or her feelings about events at work with colleagues may also exist. If a high level of commitment to the organisation is absent although peer cohesion is present, the perceived ramifications of speaking out about how a work situation has influenced the individual may be perceived to be small.

As with problem-solving coping, lack of clarity at work also contributed to the adoption of emotion-focused coping responses. It should be noted that problem-focused coping has been reported to be superior to emotion-focused coping (e.g., Felton & Revenson, 1984; Mitchell & Hodson, 1983; Terry, Tonge & Callan, 1995) as a means of dealing with problem situations. It may be that the problems at work created by factors such as lack of clarity are situations over which the individual has limited control. If no control can be exerted and problem-solving strategies cannot be applied, then the option of expressing emotions about the situation may allow the individual to deal with the situation in some sense when other options are blocked.

Problem avoidance coping strategies are considered to be maladaptive. The results of this analysis indicated that the experience of stressful events at work contributed to the adoption of this type of coping strategy. Over and above the direct relationship between workplace stress and coping response, fewer emotional coping resources were related to an increased likelihood of using a problem avoidance coping strategy. If an individual does not have the capacity to elicit emotional support and has limited capacity to express his or her emotions, then

problem avoidance may be the result and may reflect a general incapacity to appropriately deal with life problems.

It was interesting to note that there also was an association between spiritual/philosophical coping resources and problem avoidance coping. Counter-intuitively, it was evident that those people with more spiritual/philosophical coping resources were more likely to adopt problem avoidance coping strategies. This same result was evident from a study investigating the occupational stress of a large sample of public sector employees (Haines, Williams, Davidson & Bezzant, 2003).

It may be that a belief in a higher power or a belief that everything will turn out all right in the end stifles active problem solving. The attitude of these individuals may be that it is unnecessary to exert further influence over the problem situation because the problem will be resolved without the individual's intervention. Further, it would be unnecessary to express distress to family, friends or colleagues if the belief was held that every problem has a resolution if one has sufficient faith or the correct attitude. Therefore, if one believes that no other problem solving action is necessary, in effect offering oneself to fate, then there would be no need to approach the problem situation in a coping manner.

The experience of stressful events at work also predicted the adoption of wishful thinking as a coping strategy. In this case, only one other variable impacted on the relationship between workplace stressor and coping outcome. A stronger psychological reaction at the time of the stressful event was related to the use of wishful thinking as a means of dealing with the stressful event. It may be that

people's capacity to effectively cope with a problem situation is reduced when psychological distress is high.

Finally, when job satisfaction was considered as an outcome variable, the experience of stressful events at work did not predict job satisfaction. Although other variables influenced job satisfaction, the actual experience of the stressor had no influence. Greater job satisfaction was related to a less intense psychological reaction at the time of the stressful event. The low degree of unpleasant psychological distress at the time of the event would be insufficient to influence variables not directly related to the experience such as job satisfaction.

In addition, better job satisfaction was predicted by more social coping resources. Satisfaction with social functioning, both inside work and outside work, would indicate better adjustment in general. Although occupational and social aspects of life may be considered to be different quality of life domains, it may be that general life satisfaction influences these individual domains. Of course, quality of life was not considered in this study so that a definitive account cannot be offered.

Finally, level of job satisfaction was predicted with two work environment variables. Less work pressure and more work involvement predicted better job satisfaction in this sample. Therefore, it would appear that greater commitment to the job and fewer demands being placed on the individual leads to better global job satisfaction.

In summary, it was apparent from the analyses that different components of Berry's (1998) model contributed to different measures of outcome of occupational

stress. Knowledge of the specific nature of relationship can assist in the targeting of appropriate interventions both on an individual and organisational level.

However, it was also the case that only psychological distress systematically contributed to the prediction of who would lodge a workers' compensation claim, and then only to a moderate degree. It would appear that situational variables that are idiosyncratic to individual cases may better determine the motive for the lodging of a workers' compensation claim for psychological injury.

CHAPTER TEN
SUMMARY AND CONCLUSIONS

10.1 Summary and integration of results

The aim of this investigation was to examine the influences on the development of occupational stress to determine the way in which these influences impacted on the decision to lodge a workers' compensation claim for psychological injury. This was undertaken by applying an integrated model of occupational stress. Each component of the model was examined separately. When considering the results overall, it was evident that the variables clustered together in a number of ways.

10.1.1 Factors that did not distinguish groups

It was apparent that there were variables that did not distinguish the groups so these variables could be interpreted as being unrelated to the development of occupational stress or to workers' compensation for psychological injury.

Two of the demographic variables that were considered did not distinguish the groups. There was no evidence that marital status influenced the targets of this investigation. The majority of all groups were married or cohabiting with their partner. In the literature, marital status has been linked with occupational stress (e.g., Calnan, Wainwright, Forsythe, Wall & Almond, 2001) and factors such as job satisfaction (e.g., Kirkcaldy, Brown, Furnham & Trimpop, 2002). However, marital status has been demonstrated to have diverse effects. Some researchers have argued that being married, for example, increases the likelihood of developing occupational stress because of increased conflict between the demands of work and home, particularly for women (e.g., Blumenthal, Thyrum & Siegel, 1995; Field &

Bramwell, 1998; Phillips-Miller, Campbell & Morrison, 2000), whereas others postulate that the support received from a spouse or partner can offset the demands placed on the individual at work (e.g., Long & Gessaroli, 1989). In fact, it is probably a more complex relationship that would need to take into account the quality of the marital relationship (e.g., Vinokur et al., 1999), or the combination of other demands placed on the individual (e.g., Simon, 1998). Nevertheless, in the current sample, marital status did not influence either the development of occupational stress or the lodging of a workers' compensation claim for psychological injury.

Nor did educational level differentiate the groups. In this case, the majority of each of the groups had tertiary educational qualifications. Higher education has been identified as a protective factor against burnout (Decker, Bailey & Westergaard, 2002) although others have indicated that lower educational levels generally mean employment in lower occupational status jobs that are associated with fewer demands (Pelfrene et al., 2001). Although studies have focused on unskilled, skilled and professional occupational groups (e.g., De Croon et al., 2000; Flanagan & Flanagan, 2002; Hinkebein, 2002; Gillen, Baltz, Gassel, Kirsch & Vaccaro, 2002; Peters & Carlson, 1999), with comparisons between made between groups on some occasions (e.g., Hogan, Carlson & Dua, 2002; Toppinen-Tanner, Kalimo & Mutanen, 2002), it appears that people from all educational levels in jobs associated with different occupational status have been reported to experience stress at work and no specific type of education or training consistently protects people from the development of work-related stress responses.

When considering job-related factors, the level of responsibility did not distinguish the groups. As mentioned in Chapter 4, level of responsibility has been demonstrated to influence factors such as job satisfaction and psychological symptomatology (Goldenhar et al., 1998) and has been reported to differentially affect men and women (Lundberg & Frankenhaeuser, 1999). However, if a sex difference in level of responsibility was influential in relation to the current results, it would have been evident with a difference in the level of responsibility between the Assistance group and the other groups as the majority of participants in the Assistance group were male whereas the majorities in the other groups were female. Therefore, it can only be interpreted that level of responsibility does not play an important role in either the development of occupational stress or the process of workers' compensation for psychological injury.

The nature of employment did not distinguish the groups. For the current sample, the majority of members of each group were full-time employees. Full-time employment has been reported to be associated with negative work-related factors such as higher rates of absenteeism (e.g., Burke & Greenglass, 2000b; Zboril-Benson, 2002), health factors such as greater emotional exhaustion and poorer health (e.g., Burke & Greenglass, 2000c), and occupational stress in general (e.g., Lynch, 1999). However, it has been argued that reduction from full-time work to part-time work may be more a reflection of a desire to fulfil other needs than a stress-reduction strategy (e.g., Lee, MacDermid & Buck, 2002). In keeping with the current results, researchers have reported that the negative influences of changes at work can affect full-time, part-time and weekend/casual staff (Broadbridge,

Swanson & Taylor, 2000). Further, the distinction between full-time and part-time work was reported to have no influence on job satisfaction, organisational commitment, burnout or intention to leave the workplace among female nurses (Krausz, Sagie & Bidermann, 2000).

Finally, although there were group differences in the duration of employment, the time spent in the current position did not influence the research targets. Dollard et al. (1999) reported that custodial officers who had been in their positions the longest were the most stressed. However, custodial officers may have more frequently stressful episodes at work, in combination with less movement between positions or between organisations than may be the case with other occupational groups such as clerical officers. Therefore, it may be a reflection of sample characteristics as to whether the amount of time in a current position was related to occupational stress levels.

None of the variables considered as personal contributors distinguished the groups. In relation to cognitive variables such as dysfunctional attitudes and irrational beliefs, it has been postulated that the presence of these types of cognitive styles or endorsement of specific irrational beliefs predisposes an individual to experience stress and distress in relation to life events because of the negative interpretation placed on the event by the individual (e.g., Dyck, 1992). Although that may be the case, and there certainly has been evidence to suggest that this is so (e.g., Goh & Oei, 1999; Thompson & Williams, 1995), it may not follow that the presence of stress and distress can be related to the presence of these types of

dysfunctions. That is, people may experience distress because of other factors and not only because of cognitive dysfunction.

Of course, the results of the regression analyses indicated that personal factors do play a role in the prediction of negative outcomes. For example, dysfunctional attitudes significantly contributed to the prediction of psychological distress. However, there appears to be no stronger influence of personal factors for one group in contrast to other groups.

When environmental factors outside of work were considered, it was evident that there was no differential influence on the four groups. There has been a strong link in the literature between the experience of stressful events and their influence on occupational stress responses, particularly in relation to the conflict between work and home (e.g., Behson, 2002; Bruck et al., 2002; Noor, 2002). In addition, workers' compensation legislation often has recognised that stressful life events outside of work can influence performance at work by including a demand that the stress response at work has to be accounted for, to the greatest degree, by work-related events or factors (e.g., <http://www.thelaw.tas.gov.au>).

However, most of this literature has been based on results from studies that have focused on employees still at work. When psychologically symptomatic individuals are considered, along with people who have lodged a workers' compensation claim for psychological injury, it is evident that the influence of stressful experiences external to the work environment is of a similar magnitude for everyone. It was interesting to note that the scores obtained in relation to the experiences of stressful life events were elevated for all groups. This is particularly

interesting when consideration is given to the actions of many employers in trying to dispute liability for psychological injury by examining the life of the claimant away from work to determine if some other events may account for the development of psychological symptomatology (Haines et al., 1996). It would appear that employees in all stress-defined categories have events outside of work that potentially influence their functioning.

It may be that it is not the experience of stressful life events that is the important factor but the way in which an individual copes with the additional stress. Differential patterns of coping strategies were noted. For example, all of the stressed groups infrequently used cognitive restructuring as a coping strategy, the Assistance group failed to use social support as an avenue for enhanced coping, and the Stressed group was unable to access problem-solving strategies for dealing with work stress. It may be that the selection of particular patterns of coping or, indeed, failure to adopt certain coping strategies, not only makes it problematic when dealing with occupational stress but also reduces the individual's capacity to deal with other life stressors.

Some work environment factors seemed not to have any differential group effects on the development of occupational stress or the decision to lodge a workers' compensation claim. The degree of autonomy at work, the level of task orientation, the amount of control, the opportunity for innovative approaches at work and physical comfort at work were the same for all groups. In most cases, the scores obtained on the associated subscales were within a normal range. However, the levels of autonomy for the Compensation and Assistance groups were at the lower

level of what could be considered to be acceptable and, although not statistically different from the scores for the other groups, nonetheless were indicative of some problems in this area. Autonomy at work has been reported to improve job satisfaction (Flanagan & Flanagan, 2002; Steel, 2001) and decrease work stress (Buessing & Glaser, 2000), although not consistently so (e.g., Fox, Spector & Miles, 2001; Trudeau, Tussell, de la Mora & Schmitz, 2001; Winefield & Jarrett, 2001).

Although not directly tested in this study, the relatively low levels of autonomy for the Compensation and Assistance groups, in conjunction with high work demands and low levels of support fits with the explanation provided by the Demand-Control(-Support) model of occupational stress (e.g., Karasek & Theorell, 1990; Tummers, Landeweerd, & van Merode, 2002b).

As mentioned in Chapter 7, it was evident that all participant groups responded in the same way both psychophysiological and psychologically to both stressful and nonstressful work events although the nature of the response to the stressful and nonstressful events could be differentiated. To a large extent, the literature relating to arousal changes as a function of work-related experiences has focused on demonstrating that stressful events at work increase psychophysiological arousal. Researchers have been successful in showing this to be the case (e.g., McLaren, 1997). However, the implication in the literature is that these results also mean that the increased arousal is a manifestation of clinically defined occupational stress reactions. There is little evidence that this is the case. The results of the current study support the notion that all stressful events at work are associated with an increase in arousal irrespective of psychological status.

Of course, there has been evidence of differential psychophysiological responding in extreme cases of occupational stress. Carson et al. (1998a, 1998b, 1998c) and Haines, Williams and Carson (2002) were able to demonstrate significantly elevated heart rate in response to both stressful work events and neutral events related to a phobic reaction to the workplace. The heart rate responses were elevated relative to a work stressed but non-phobic group and a non-stressed group. However, markedly increased sympathetic arousal is characteristic of phobic responses (e.g., Rachman, 1991) so it may have been the nature of the phobic response that was causing the increased arousal rather than merely a response to a stressful work event.

Further, there is some indication that it may not be the overall level of arousal in response to stressful events at work that is interesting, but the pattern of response. As mentioned previously, a comparison of responses to organisational and work-related interpersonal stressors indicated different arousal patterns with maintenance of the heart rate elevation being noted for the interpersonal stressor group and an anticipatory response for the organisational group (Cardoz et al., 2002). These types of differences may have implications for the way in which an occupational stress response develops and is maintained over time and may determine the way in which an individual will cope with the reaction to the event.

It was interesting to note that none of the outcome measures were experienced in the same way by all groups although the degree of differentiation in relation to health effects and substance use was small and a statistical difference in job satisfaction was absent. Of course, by definition, the outcome variables for the

groups should have been different given that the group allocation was made on the basis of outcome differences in terms of help-seeking and the development of stress responses.

10.1.2 Similarities between all three stressed groups

All three stressed groups reported high levels of work pressure as a work environment factor as well as feeling that all work is urgent as a specific work stressor. All three stressed groups also reported more severe workload than the No Stress group. Work pressure and workload have been identified as factors that consistently contribute to the development of occupational stress (Carayon, Yang & Lee, 1995; Sparks & Cooper, 1999).

The enormity of the perceived volume of work to be completed and the perceived pressure to complete it within a limited period of time would increase stress levels. It has been reported that these types of demands at work lead to difficulties prioritising work activities and communicating with colleagues (Styhre et al., 2002). This is interesting in light of the fact that all stressed groups also reported conflict with supervisors as a specific work stressor.

It has been reported in the literature that personal factors such as cognitive hardiness influence the perception of the severity of work pressure (e.g., Turnipseed, 1999). However, in the absence of differences between groups on any of the personal variables examined in the current study, and given that all three stressed groups reported elevated workload and work pressure, it is unlikely that these other

variables have created a misinterpretation of the amount of work having to be undertaken or the severity of the pressure felt by employees.

As mentioned, conflict with supervisors was consistently reported by all stressed groups along with a general atmosphere of mistrust. A vast literature examining support in the workplace has demonstrated that lack of support is detrimental to the wellbeing of employees and the results of the current study support this notion. It has been suggested that the absence of support at work makes dealing with other stressors more problematic. That is, the ability to persist when faced with excessive demands is reduced if support is not forthcoming.

The problems associated with conflict with supervisors and an atmosphere of mistrust were noted when examining the factors that contributed to lodging a workers' compensation claim among a large sample of Tasmanian public sector employees (Haines et al., 1996). The results of this study would indicate that the negative effects are more generalised and are experienced by all groups who are stressed because of work-related experiences.

In general, stress at work was characterised in this study by elevated levels of anxiety and psychological distress, in addition to marked obsessive-compulsive symptoms. The factor that distinguished the stressed groups was not the experience of anxiety and distress, but the magnitude of the experience. Only the Compensation and Assistance groups reported clinically significant levels of symptomatology. The stronger influence of clinically significant anxiety and distress appears to be a factor that would encourage help-seeking by the individuals in the Compensation and Assistance groups.

As mentioned, all of the stressed groups failed to use cognitive restructuring as a means of coping with stressful events at work. The ability to reframe or reinterpret situations so see them in a more positive light is particularly useful in situations where control over events is low. Reframing or reinterpretation forms the basis of cognitive-behaviour therapy (e.g., Ellis, 1984).

It is interesting to note that there was no evidence of deficient cognitive coping resources so all participants appeared to have the fundamental ability to reframe situations. However, it was apparent that all of the stressed groups failed to adopt such a coping strategy when dealing with a stressful event at work. This raises an interesting question about the usefulness of coping resources if they cannot be applied in problematic situations.

It could be argued that there is a critical point, beyond which it becomes more difficult to apply particular coping skills because of the interference of factors such as anxiety or distress. However, this type of argument may not be able to be sustained in light of the fact that all three stressed groups were unable to apply cognitive restructuring strategies but only the Compensation and Assistance groups experienced clinically significant symptomatology. Of course, it may be that the selection of particular coping strategies is situation-specific and the elements of the stressful events at work with which the stressed participants had to cope made it especially difficult to apply cognitive-type strategies.

10.1.3 Similarities between the Compensation and Assistance groups

There were many similarities between the Compensation and Assistance groups that, no doubt, were a reflection of the fact that the individuals in these groups were experiencing significant occupational stress responses. In terms of demographic variables, both the Compensation and Assistance groups were older than the other groups, and in keeping with this, had been in employment longer. As previously mentioned, there is probably some overlap in duration of employment and duration in current position as measures of duration of exposure to particular work stressors or particular work environments. The selection of the most relevant variable for a particular study would depend on the nature of the occupation, the degree of movement between positions, or mobility between organisations. It was interesting to note that in relation to this sample, duration of employment had an influence whereas duration in current position did not.

The important point seems to be that duration of exposure to particular stressful circumstances increases the likelihood of the development of occupational stress. There is some literature to support this proposition (e.g., Dollard et al., 1998). However, it should be noted that others have suggested that longer duration in a particular job increases the likelihood that adaptive coping strategies will be adopted to meet the occupational challenges and demands (e.g., Humpel & Caputi, 2001). Of course, an alternative explanation would relate to the age of the participants rather than the duration of employment. Younger people have been reported to be greater risk takers and to be more likely to be unencumbered by family and financial commitments (e.g., Grzywacz et al., 2002). With mobility

between jobs or, indeed, occupations being seen as more acceptable, the response to an unpleasant work environment may be for younger employees to change jobs. It could be argued that middle-aged employees have a greater need for job security (e.g., Grzywacz et al., 2002), resulting in them persevering despite significant exposure to work stressors and significant occupational stress responses.

Whether it is duration of employment (and therefore, greater exposure to stressful situations), or age (with the greater need to persevere) that is the relevant variable, the fact that the stress responses were a consequence of exposure to cumulative stressors in most cases means that both the Compensation group and the Assistance group had the opportunity to be exposed to chronic stress at work.

The Compensation and Assistance groups could not be differentiated on the basis of their use of other types of leave as a means of coping with stress at work. It has been suggested by others that the use of sick leave is a strategy for dealing with occupational stress responses in groups who subsequently lodged a workers' compensation claim for psychological injury (Dollard et al., 1999; Haines et al., 1996). It clearly was the case in these samples that the use of sick leave exceeded the organisational average number of days per annum. However, when including a group who also experienced significant occupational stress but who had not lodged a workers' compensation claim, it was evident that they, too, had made use of sick leave in an effort to cope with symptoms. Therefore, as suggested in Chapter 4, the use of other types of leave, especially sick leave, may be a more generalised response to stress at work.

Another interesting result was the fact that there was no difference between the groups in the mean duration of time away from work because of occupational stress despite the fact that the Compensation group would have been receiving benefits. Of course, there was a large degree of variability in time away from work for both groups.

There were a number of work environment factors that were common to both the Compensation and the Assistance groups. In particular, the work environments of these two highly stressed groups were characterised by low levels of involvement, poor peer cohesion, low levels of staff support and little clarity. Such a problematic work climate would not only be likely to trigger a stress response, it would offer little in the way of encouragement to persevere in the face of increasing symptomatology. As mentioned, the lack of support and low levels of peer cohesion would remove any incentive to continue unassisted when experiencing other workplace stressors.

The similarities between the Compensation and Assistance groups in relation to workplace stressors was not in the nature of the stress, with the exception of role overload, but in the severity of the stressors experienced. In particular, both groups reported more severe cause and effect stressors, interpersonal conflict stressors, lack of support, and harassment/disciplinary action stressors. It would appear that it is the severity of the stressor that triggers a need to act to deal with the situation, either by seeking professional help to combat psychological symptoms or by lodging a workers' compensation claim. Although the existence of stressors at work are evident for all employees, it is not their existence as such that is problematic. It

would appear that only when their influence extends beyond a manageable level that problems in coping arise. Although this may seem to be a truism, it could be argued that many intervention or management programmes in the workplace focus on changing or removing stressors, rather than dealing with their severity. Having said that, there are specific workplace stressors that do distinguish the Compensation and Assistance groups in terms of the frequency of their occurrence. These will be discussed in coming sections.

There was a wide range of symptomatology that was experienced by both the Compensation and the Assistance groups. In particular, depressive symptoms, and symptoms related to interpersonal problems such as interpersonal sensitivity, hostility and paranoid ideation or suspiciousness were experienced by both groups. The interpersonal symptoms would not be unexpected given the general lack of support, high levels of conflict and severity of interpersonal problems at work that were experienced by the members of the Compensation and Assistance groups.

10.1.4 Variables that distinguished the Assistance group

In relation to demographic variables, the Assistance group was the only group with more male than female members. The reasons for this were discussed in Chapter 4 but may relate to when the need for resolution exceeds the normal constraints on male help-seeking, seeking confidential psychological support may be preferable to lodging a workers' compensation claim. Reluctance to lodge a workers' compensation claim for psychological injury may be related to a need to maintain personal and professional standing in the organisation.

It was interesting that the Assistance group was more likely to have previously experienced work-related stress symptoms. This may have made these individuals more vulnerable to the development of a similar response when similar work-related influences were present.

There was a lower rate of acute onset stressors experienced by the Assistance group than the Compensation group. The cumulative effect of lower grade stress contributing to the stress response, in conjunction with such a response having developed previously, may mean that the individuals who sought professional help but did not lodge a workers' compensation claim felt a greater degree of personal responsibility for the development of symptoms. That is, if the individual had failed to cope on more than one occasion, in different job settings, then the view might be held that it was not only an organisational matter but a personal one as well. The specific work stressors that distinguished the Assistance groups from others were the exhausting nature of work and, to some extent, conflict with colleagues. It could be speculated that personal responsibility could be attributed in these cases. This may account, at least partially, for the reason why professional help was sought but a workers' compensation claim was not lodged.

One other factor that may have contributed to a reluctance to lodge a workers' compensation claim was the fact that there was no evidence that the Assistance group viewed their jobs in a negative way. Their reported job satisfaction was acceptable despite the experience of significant symptomatology. The lack of relationship between job dissatisfaction and occupational stress has been recognised by others (e.g., Kuang-Jung, 2001).

10.1.5 Variables that distinguished the Compensation group

In accordance with the major focus of this study, a range of variables were identified that distinguished the Compensation groups from other groups. Firstly, although not representing the majority of cases, there were more acute onset stressors that precipitated the stress response in this group than others groups. Generally, acute onset stressors are characterised by traumatic experiences that are easily recognised as likely to lead to psychological injury. Examples would include physical assault, motor vehicle accidents, or exposure to death or injury of another person. The recognisable nature of these events would make the process of lodging a workers' compensation claim easier. Indeed, these types of claims were less likely than chronic onset claims to be disputed by employers (Haines et al., 1996). Although claims are disputed for a variety of reasons that may not directly be related to the validity of the claim, often claim disputes are perceived by the claimants as an attack on their credibility or integrity (Haines et al., 1996). Factors that remove the threat of dispute may increase the likelihood that a claim would be lodged. It is worthy of note that disputation of a claim has been associated with increased time away from work and a more negative outcome with regard to return to work that cannot be accounted for by severity of occupational stress response or the nature of the workplace stressor (Haines et al., 1996).

In comparison with the Assistance group, the Compensation group sought professional help within a shorter period of time and there was a tendency for them to seek help at work sooner than the Assistance group. It is recognised that there was considerable variability between participants in relation to these variables

although examination of the medians support the results. A number of factors could have been in operation. Firstly, it may be that the members of the Compensation group recognised their dilemma earlier than the Assistance group. Contributing to this would have been the greater proportion of acute onset stressors among the Compensation group. Generally, it is well recognised that earlier intervention following a traumatic experience is preferable to delayed intervention (e.g., Watlington & Foa, 2001). In response to an acute stressor, resources may have been mobilised in an effort to reduce the negative effects and improve the longer time prognosis. In fact, it may not have been a matter of the individual seeking assistance, but that in these cases assistance was offered.

However, it also would need to be the case that the perception in the workplace and by the individual was that seeking work-related and professional assistance was an acceptable option. In high risk occupations, and in many other organisations, procedures are set in place for dealing with traumatic events. General knowledge in the workplace about these types of management procedures would increase the likelihood that they would be viewed as a normal part of employee care and be seen as acceptable as a consequence.

There were a number of work-related stressors that were experienced with more frequency by the Compensation group than by the other groups. In particular, these related to interpersonal variables such as lack of support and isolation, and reward-related variables such as lack of recognition for work and having to reach unachievable goals. The types of stressors experienced would be associated with little reinforcement for being at work and may remove any barriers to lodging a

workers' compensation claim for psychological injury. There would be little reason to persevere despite the perception of the potentially negative effects of becoming a workers' compensation claimant such as ostracism and damage to career.

The Compensation group was characterised by clinically significant anxiety and distress and these variables distinguished them from other groups. Although anxiety and psychological distress have been well established as outcomes of exposure to stressful events at work (e.g., Bourbonnais et al., 1996; Travers & Cooper, 1994), it cannot be discounted that involvement in the compensation system elevated anxiety and distress levels for this group. It has been recognised that involvement in a system that is operated in an adversarial manner can increase distress (e.g., Trief & Donelson, 1995). It also has been noted that settlement of workers' compensation claims may lead to a reduction in psychological symptomatology (e.g., Haines et al., 1996). Rather than evidence of exaggeration of symptoms, this phenomenon could be interpreted as a manifestation of the additional stress caused by involvement in the workers' compensation process.

10.2 Limitations of study

It is acknowledged that the sample sizes for each of the groups are not large. To some extent, the sample size was limited by Study 4 because of the time consuming nature of the collection of the psychophysiological and psychological imagery data. Also, obtaining both clinically work-stressed individuals and those who had lodged a workers' compensation claim for psychological injury is more difficult than obtaining a sample of employees still working within an organisation. This may be the reason why there are so few studies using these types of samples.

It also is acknowledged that there is some missing data. To investigate all of the components of the integrated model that may impact both on the development of occupational stress and the lodging of a workers' compensation claim for psychological injury, it was necessary to use a range of questionnaires and techniques. There is no integrated assessment package in existence such as those used for undertakings such as neuropsychological assessments. Therefore, the number of questionnaires was necessarily large but nonetheless demanding for the participants. This resulted in some questionnaires being either partially completed or missed altogether. In contrast, the number of participants in the guided imagery study was equivalent to or greater than other studies that have used similar techniques (e.g., Pitman et al., 1987; Shalev et al., 1991).

It is recognised that there are other variables that could be included within the parameters of the integrated model chosen for this study. A compromise had to be reached between comprehensive coverage of the factors influencing occupational stress and the demands on the participants. As mentioned, the demands on the participants were already great and, although other variables would have been of interest, it was necessary to limit the number of hours participants would have to spend completing questionnaires.

10.3 Directions for future research

It was evident from the results of previous studies that much can be learned about the development of occupational stress from examining working, non-stressed populations. However, it is also evident from the results of the current study that it is imperative that clinically stressed groups be considered if a complete

understanding of the occupational stress process is to be gained. Further, it is necessary to be able to compare clinically stressed groups who did and did not seek workers' compensation so that factors associated with workers' compensation for psychological injury can be accurately identified and targeted for intervention.

Although some variables that were associated with a workers' compensation claim for psychological injury were identified from the results of this investigation, other factors need to be considered. Future studies could investigate the decision making process that leads to the lodging of a workers' compensation claim for psychological injury. Such an undertaking would need to investigate the types of influences identified in the current study along with other factors that impact on the actual decision to lodge a claim. Such factors may include the attitude of the individual towards workers' compensation and the importance of status within the organisation, as well as the attitude of the organisation towards both workers' compensation claims and workers' compensation claimants. By working through a decision tree, it would be able to be determined to what extent such factors were impacting on the decision to lodge a claim.

In addition, consideration would need to be given to variables that acted as barriers to the lodging of a workers' compensation claim or factors that facilitated the lodging of a claim. The strength of these barriers and facilitators could be determined in individual cases or within organisations. In this way, more accurate prediction of claims for workers' compensation could be identified and appropriate targets for intervention, both on a personal and organisational level, could be selected.

It may be that there are a number of factors (e.g., environmental, attitudinal) that increase the likelihood that a workers' compensation claim for psychological injury would be lodged. However, it may be that there are a number of combinations or patterns of experience that lead to the same outcome. That is, there may be a number of different pathways to a workers' compensation claim. There would need to be some way to identify the pathway of relevance to a particular individual or organisation so that effective and appropriate intervention strategies could be developed.

As it also is a problem that clinically stressed individuals exist in an organisation who have not lodged a workers' compensation claim but who have sought professional help, a similar strategy needs to be set in place to identify these people and to obtain information about them and their experiences that would allow for assistance to be provided in such a way as to optimise the chance of maintaining them in the workplace and easing their current circumstances. This will only be achieved by including appropriate populations for research.

There has been a gap in the knowledge available about occupational stress that has been recognised by others (e.g., Dollard et al., 1999). That is, for a complete picture of the factors that impact on the development of occupational stress and contribute to the choices made about how to resolve work-related problem situations, it would also be necessary to compare groups such as those used in the current study with people who have left a workplace by some other means (e.g., resignation, transfer) because of work stress. The use of this approach probably has been limited by the difficulty associated with the identification of such individuals.

However, it seems important that researchers include such a group if the decision processes associated with coping with work-related stress are to be fully understood. Further, it has been suggested that there may be different occupational stress influences on private and public sectors (e.g., Dollard & Walsh, 1999) so inclusion of participants from different working environments may be important.

It also has been recognised by others that there is a discrepancy between how much is known about the development of occupational stress and how little attention has been directed towards developing appropriate intervention strategies (e.g., Dollard et al., 1999). It may be necessary to be able to accurately identify the combination of factors that impact of an individual or a particular organisation so that effective interventions can be developed. The complexity of the problem obviously requires complex solutions. Solutions based on global interventions seem inappropriate and doomed to failure in the long term.

Of course, it is recognised that some strategies may improve the wellbeing of all or most employees in an organisation. However, this still may be insufficient to deal with specific problems that give rise to clinically significant distress and the desire to lodge a workers' compensation claim for psychological injury. Therefore, specific strategies for dealing with these less common problems need to be identified, implemented and evaluated.

Finally, it would be a desirable outcome if the number of workers' compensation claims could be reduced. However, this would not be the case if the cost to the individual was too high. That is, it would only be appropriate to reduce workers' compensation claims by enhancing the positive barriers to lodging a claim

(e.g., increasing loyalty and support) and not by increasing the negative barriers (e.g., increasing the threat to integrity or career development). It always will be the case the workers' compensation claims for psychological injury will be lodged because of the nature of some workplaces or occupations (e.g., high exposure to trauma). Identifying the factors that facilitate early and successful return to work following compensated leave for psychological injury should be a further target for investigation.

10.4 Conclusions

The aim of the study was to determine the variables associated with the development of occupational stress and to consider which of these variables contribute to the claim for workers' compensation for psychological injury. The results indicated that there were two clinically stressed groups that shared many characteristics and experiences. However, it was determined that a range of influences specifically experienced by the Compensation group were associated with a claim for psychological injury as a result of work-related experiences. It was suggested that the decision processes associated with a desire to lodge a workers' compensation claim for psychological injury need to be further examined so that attitudes or experiences that act as a barrier to lodging a claim or facilitate the lodging of a claim can be identified. In this way, interventions appropriate for the individual or a specific organisation can be identified, implemented and evaluated for their effectiveness.

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APPENDIX A

Occupations of group members

Table 41. *The occupations of each of the group members.*

Compensation	Assistance	Stressed	No Stress
Veterinarian	Accountant	Case manager	Personnel officer
Teacher/counsellor	Snr project officer	Social worker	IT architect
Bank officer	State manager	Graphic designer	Admin officer
Museum curator	Office manager	Teacher/trainer	Social worker
Teacher	Project manager	IT consultant	School tutor
Teacher	Power controller	Architect	Claims assistant
Systems officer	Book keeper	Doctor	Military policeman
Rehab consultant	Admin officer	Dental assistant	Electoral officer
Support worker	Green keeper	Nurse	Teacher
Project consultant	Disability officer	Computer progrmr	Nurse
Nurse	Project director	Admin. Assistant	Nurse
Job consultant	Clerical officer		Nurse
Factory hand	House manager		Home carer
Broadcaster	Finance officer		Home carer
Policy analyst	Mail clerk		Welfare worker
Trade teacher	Bank officer		Practice manager
Nurse	Hairdresser		HR officer
Cable advisor	RAAF clerk		Finance officer
Admin officer	Teacher		Nurse
Police officer	Managing director		Field officer
Bank officer	Systems analyst		
Bursar			

APPENDIX B

Consent form and information sheet

STATEMENT OF INFORMED CONSENT

The psychophysiology and psychology of occupational stress.

I have read and understood the 'Information Sheet' for this study. The nature and possible effects of the study have been explained to me.

I understand that the study involves:

- discussing the nature of my work and stressful work events;
- completing questionnaires about how I have been feeling recently;
- discussing in detail a stressful work event, a nonstressful event at work and a neutral event of my choosing; and
- attending the laboratory and having electrodes and measurement instruments fitted so that recordings of my heart rate and cardiac measures, respiration and skin conductance can be taken while I am being asked to image aspects of the work and neutral events.

I understand that precautions will be taken against an allergic reaction to surgical tape.

I understand that all research data will be treated as confidential. Any questions that I have asked have been answered to my satisfaction. I agree to participate in this investigation and understand that I may withdraw at any time without prejudice to any treatment regimes, academic standing, or future participation in research projects. I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

Name of participant:

Signature of participant: Date:

I have explained this project and the implications for participation in it to this volunteer and I believe that the consent is informed and that s/he understands the implications of participation.

Name of investigator:

Signature of investigator: Date:

Psychophysiological and psychological correlates of occupational stress

The above project is being conducted by Dr Chris Williams, Dr Janet Haines, and Miss Jacqueline Carson of the School of Psychology at the University of Tasmania. The purpose of the project is to learn more about the causes of work-related stress conditions and the symptoms manifested in individuals. The aim is to develop ways of preventing stress related conditions and to better manage symptoms in individuals who already suffer from the adverse effects. The project is being undertaken as part of the requirements for a PhD in psychology.

We are interested in comparing the reactions to a stressful work event of people who have developed a work-related stress condition with people who have experienced stressful events but who have never developed a work-related stress condition.

If you agree to participate, the nature of your work stress will be discussed with you. You also will be asked to complete some questionnaires about how you have been feeling recently. You will then be interviewed about a particular stressful work event, a non-stressful work event, and a neutral event such as making a hot drink. This interview will be recorded on audio cassette. The information from the interview will be used to devise imagery scripts that will be used to guide you through the memory of the episode. You will be required to attend the laboratory and have electrodes applied so that measures of heart rate can be taken. These measurements will be taken while you are guided through imagery of your work events as well as the neutral event. A selection of questionnaires examining the nature of your working environment will be provided, which you may complete at your leisure.

If you agree to participate, please let us know if you are allergic to surgical tape so that we can take precautions against any reaction.

We wish to emphasise that the information you share with us will be treated in a confidential manner. All written information, computer data files, and audio cassettes will be stored with a participation number rather than your name. The data will be secured in a locked cabinet.

Participation in this study is completely voluntary. If you are approached to participate and you do not wish to proceed you have the right to say no. In addition, if you decide to participate in the study but then change your mind and wish to withdraw, you may do so at any time without prejudice with regard to any treatment regimes, academic standing, or participation in future research projects.

If you wish to discuss the project before, during, or after participation, please contact Dr Janet Haines on (03) 6226 7124. This project has been approved by the University Ethics Committee (Human Experimentation). If you have any concerns or complaints regarding the ethical nature of the project you may contact the Chair or Executive Officer of the University Ethics Committee (Human Experimentation). The contact numbers are as follows: Dr Margaret Otlowski, Chair, (03) 6226 7569; Ms Chris Hooper, Executive Officer, (03) 6226 2763. If you are a University of Tasmania student, you may wish to discuss any personal concerns with a University Student Counsellor.

We would be happy to discuss your individual results with you. Overall results will be available at the completion of the project if you are interested. If you decide to withdraw from the project, we would welcome the opportunity to discuss with you any concerns you have about the project and your participation in it.

Please keep this information sheet and, if necessary, refer to the information it contains. In addition, if you agree to participate, you will be asked to sign a statement of informed consent. A copy of this statement will be supplied to you.

Thank you.

APPENDIX C

Questionnaires and scales used in Study 1.

GENERAL WORK HISTORY QUESTIONNAIRE

Participant Identification: _____

PERSONAL DEMOGRAPHIC INFORMATION

Sex: ☐ Male ☐ Female

Age: _____

Marital status: ☐ Never married
☐ Married/de facto
☐ Separated/divorced
☐ Widowed

Education: ☐ Did not complete high school
(Tick your highest ☐ Completed high school
qualification) ☐ Matriculation
☐ Trade qualification
☐ Tertiary qualification

EMPLOYMENT DEMOGRAPHIC INFORMATION

Occupation: _____

Nature of employment: ☐ Full time
☐ Part time
☐ Contract
☐ Casual
☐ Temporary
☐ Permanent
☐ Acting higher duties

Level of responsibility ☐ Executive
in your occupation: ☐ Middle management
☐ Supervisor
☐ Employee

Total time employed: Years _____ Months _____

Duration in current position (at time of leaving work): Years _____ Months _____

WORK RELATED STRESS INFORMATION

Have you been affected by occupational stress in a previous job?

☐ Yes ☐ No

What was the nature of onset of stress in present job?

☐ Chronic
☐ Acute

How long after the onset of stress did you first seek assistance at work? _____

How long after the onset of stress did you first seek assistance from a _____ professional?

Please specify the type(s) of professional:

☐ General practitioner
☐ Employee Assistance Program
☐ Counsellor
☐ Psychologist
☐ Psychiatrist
☐ Other _____

Have you ever taken sick leave because you were stressed at work?

☐ Yes ☐ No

Have you ever taken annual/reaction leave because you were stressed at work?

☐ Yes ☐ No

Have you ever taken long service leave because you were stressed at work?

☐ Yes ☐ No

How long did you experience stress at work before first taking leave? _____

Have you lodged a workers' compensation claim for work related stress?

☐ Yes ☐ No

When did you lodge the claim? _____

Has your claim been successful?

☐ Yes
☐ No
☐ Still in progress

How long have you been away from work? _____

Have you been involved in a rehabilitation program?

☐ Yes ☐ No

Indicate the item most appropriate to your return to work:

- ☐ Full time return to work in the same position
- ☐ Full time return to work in a different position
- ☐ Part time return to work in the same position
- ☐ Part time return to work in a different position
- ☐ Yet to return to work
- ☐ Will not return to work

How many attempts have you made to return to work? _____

BELIEFS INVENTORY

	Agree	Disagree	Score	Belief
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	1. It is important to me that others approve of me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	2. I hate to fail at anything.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	3. People who do wrong deserve what they get.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	4. I usually accept what happens philosophically.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	5. If a person wants to, he can be happy under almost any circumstances.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	6. I have a fear of some things that often bothers me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	7. I usually put off important decisions.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	8. Everyone needs someone he can depend on for help and advice.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	9. "A zebra cannot change his stripes."
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	10. I prefer quiet leisure above all things.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	11. I like the respect of other, but I don't have to have it.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	12. I avoid things I cannot do well.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	13. Too many evil persons escape the punishment they deserve.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	14. Frustrations don't upset me.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	15. People are disturbed not by situations but by the view they take of them.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	16. I feel little anxiety over unexpected dangers or future events.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	17. I try to go ahead and get irksome tasks behind me when they come up.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	18. I try to consult an authority on important decisions.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	19. It is almost impossible to overcome the influences of the past.

	<i>Agree Disagree Score</i>			<i>Belief</i>
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	20. I like to have a lot of irons in the fire.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	21. I want everyone to like me.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	22. I don't mind competing in activities in which others are better than I.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	23. Those who do wrong deserve to be blamed.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	24. Things should be different from the way they are.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	25. I cause my own moods.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	26. I often can't get my mind off some concern.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	27. I avoid facing my problems.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	28. People need a source of strength outside themselves.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	29. Just because something once affects your life strongly doesn't mean it need do so in the future.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	30. I'm most fulfilled when I have lots to do.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	31. I can like myself even when many others don't.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	32. I like to succeed at something, but I don't feel I have to.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	33. Immorality should be strongly punished.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	34. I often get disturbed over situations I don't like.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	35. People who are miserable have usually made themselves that way.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	36. If I can't keep something from happening, I don't worry about it.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	37. I usually make decisions as promptly as I can.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	38. There are certain people whom I depend on greatly.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	39. People overvalue the influence of the past.

	Agree	Disagree	Score	Belief
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	40. I most enjoy throwing myself into a creative project.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	41. If others dislike me, that's their problem, not mine.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	42. It is highly important to me to be successful in everything I do.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	43. I seldom blame people for their wrongdoings.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	44. I usually accept things the way they are, even if I don't like them.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	45. A person won't stay angry or blue long unless he keeps himself that way.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	46. I can't stand to take chances.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	47. Life is too short to spend it doing unpleasant tasks.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	48. I like to stand on my own two feet.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	49. If I had had different experiences I could be more like I want to be.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	50. I'd like to retire and quit working entirely.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	51. I find it hard to go against what others think.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	52. I enjoy activities for their own sake, no matter how good I am at them.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	53. The fear of punishment helps people be good.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	54. If things annoy me, I just ignore them.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	55. The more problems a person has, the less happy he will be.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	56. I am seldom anxious over the future.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	57. I seldom put things off.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	58. I am the only one who can really understand and face my problems.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	59. I seldom think of past experiences as affecting me now.

	<i>Agree</i>	<i>Disagree</i>	<i>Score</i>	<i>Belief</i>
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	60. Too much leisure time is boring.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	61. Although I like approval, it's not a real need for me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	62. It bothers me when others are better than I am at something.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	63. Everyone is basically good.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	64. I do what I can to get what I want and then don't worry about it.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	65. Nothing is upsetting in itself – only in the way you interpret it.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	66. I worry a lot about certain things in the future.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	67. It is difficult for me to do unpleasant chores.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	68. I dislike having others make my decisions for me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	69. We are slaves to our personal histories.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	70. I sometimes wish I could go to a tropical island and just lie on the beach forever.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	71. I often worry about how much people approve of and accept me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	72. It upsets me to make mistakes.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	73. It's unfair that "the rain falls on both the just and the unjust".
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	74. I am fairly easygoing about life.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	75. More people should face up to the unpleasantness of life.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	76. Sometimes I can't get a fear off my mind.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	77. A life of ease is seldom very rewarding.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	78. I find it easy to seek advice.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	79. Once something strongly affects your life, it always will.

	<i>Agree</i>	<i>Disagree</i>	<i>Score</i>	<i>Belief</i>
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	80. I love to lie around.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	81. I have considerable concern with what people are feeling about me.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	82. I often become quite annoyed over little things.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	83. I usually give someone who has wronged me a second chance.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	84. People are happiest when they have challenges and problems to overcome.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	85. There is never any reason to remain sorrowful for very long.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	86. I hardly ever think of such things as death or atomic war.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	87. I dislike responsibility.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	88. I dislike having to depend on others.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	89. People never change basically.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	90. Most people work too hard and don't get enough rest.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	91. It is annoying but not upsetting to be criticised.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	92. I'm not afraid to do things which I cannot do well.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	93. No one is evil, even though his deeds may be.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	94. I seldom become upset over the mistakes of others.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	95. Man makes his own hell within himself.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	96. I often find myself planning what I would do in different dangerous situations.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	97. If something is necessary, I do it even if it is unpleasant.
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	98. I've learned not to expect someone else to be very concerned about my welfare.

	<i>Agree</i>	<i>Disagree</i>	<i>Score</i>	<i>Belief</i>
**	<input type="checkbox"/>	<input type="checkbox"/>	_____	99. I don't look upon the past with any regrets.
*	<input type="checkbox"/>	<input type="checkbox"/>	_____	100. I can't feel really content unless I'm relaxed and doing nothing.

ATTITUDE SCALE – FORM A

This inventory lists different attitudes or beliefs which people sometimes hold. Read each statement carefully and decide how much you agree or disagree with it. For each statement, mark your answer using the number code given below that best describes how you think. To decide whether a given attitude is typical of your views, keep in mind how you think most of the time.

1	2	3	4	5	6	7
<i>Disagree totally</i>	<i>Disagree very much</i>	<i>Disagree slightly</i>	<i>Neutral</i>	<i>Agree slightly</i>	<i>Agree very much</i>	<i>Agree totally</i>

1.	People will probably think less of me if I make a mistake.	
2.	I must be a useful, productive, creative person or life has no purpose.	
3.	I can find greater enjoyment if I do things because I want to, rather than in order to please other people.	
4.	By controlling the way I interpret situations, I can control my emotions.	
5.	If you cannot do something well, there is little point in doing it at all.	
6.	What other people think about me is very important.	
7.	People should prepare for the worst or they will be disappointed.	
8.	I should be able to please everybody.	
9.	Even though a person may not be able to control what happens to him, he can control how he thinks.	
10.	It is shameful for a person to display his weaknesses.	
11.	If a person has to be alone for a long period of time, it follows that he has to be lonely.	

12.	A person should try to be the best at everything he undertakes.	
13.	If a person is not a success, then his life is meaningless.	
14.	It is not necessary for a person to become frustrated if he finds obstacles to getting what he wants.	
15.	If I make a foolish statement, it means I am a foolish person.	
16.	I should always have complete control over my feelings.	
17.	I can enjoy myself even when others do not like me.	
18.	If I do not set the highest standards for myself, I am likely to end up a second-rate person.	
19.	If I do not do well all the time, people will not respect me.	
20.	One should look for a practical solution to problems rather than a perfect solution.	
21.	My value as a person depends greatly on what others think of me.	
22.	A person should do well at everything he undertakes.	
23.	If someone disagrees with me, it probably means he does not like me.	
24.	I cannot be happy unless most people I know admire me.	
25.	My own opinions of myself are more important than others' opinions of me.	
26.	If I do not treat people kindly, fairly, and considerately, I am a	

	rotten person.	
27.	It is awful to be disapproved of by people important to you.	
28.	If you do not have other people to lean on, you are bound to be sad.	
29.	People will like me even if I am not successful.	
30.	If other people know what you are really like, they will think less of you.	
31.	Whenever I take a chance or risk I am only looking for trouble.	
32.	If a person avoids problems, the problems go away.	
33.	No one can hurt me with words. I hurt myself by the way I choose to react to people's words.	
34.	Others can care for me even if they know all my weaknesses.	
35.	If I fail partly, it is as bad as being a complete failure.	
36.	People will reject you if they know all your weaknesses.	
37.	I can reach important goals without slave-driving myself.	
38.	My happiness depends more on other people than it does on me.	
39.	If a person I love does not love me, it means I am unlovable.	
40.	I ought to be able to solve my problems quickly and without a great deal of effort.	

APPENDIX D

Statistical results from Study 1.

Table 42.
The chi-square results from Study 1.

Data	Variable	χ^2	df	N	p
Demographic	Sex	9.96	3	73	.02
	Marital status	9.43	6	73	.15
	Education	12.45	9	73	.19
Work-related	Nature employ	6.80	3	72	.08
	Responsibility	14.36	9	69	.11
Work stress	Prev. work stress	12.51	3	73	.006
	Nature onset	66.53	6	73	.0001
	Help-GP	0.78	1	42	.38
	Help-EAP	3.11	1	42	.08
	Help-counsellor	1.71	1	42	.19
	Help-psychologist	3.63	1	42	.06
	Help-psychiatrist	8.40	1	42	.004
	Help-other	3.11	1	42	.08
	Sick leave	0.43	1	42	.51
	Annual leave	1.00	1	42	.32
	Long serv. leave	0.00	1	42	1.00
	Leave no pay	2.04	1	42	.15

Table 43.
ANOVA results from Study 1.

Data	Variable	F(*t)	df	M ²	p
Demographic	Age	4.32	3,69	369.11	.008
Work-related	Dur. employment	6.28	3,69	98115.79	.0008
	Dur. current pos.	2.13	3,68	17112.78	.10
Work stress	Time to wk help	* 2.02	23		.055
	Time to prof help	* 2.14	34		.039
Coping resources	Emotional	1.41	3,56	205.17	.25
	Spiritual	0.14	3,56	13.83	.93
	Physical	1.99	3,56	94.64	.13
	Cognitive	1.09	3,56	110.27	.36
	Social	1.07	3,56	138.78	.37
	Global	0.68	3,56	407.27	.57
DAS		0.33	3,55	185.28	.80
Beliefs	Approval	0.34	3,53	2.16	.79
	Competence	2.18	3,53	10.45	.10
	Guilt	1.04	3,53	4.86	.38
	Awfulising	0.26	3,53	1.04	.86
	Externalising	2.00	3,53	12.52	.12
	Fear	0.30	3,53	7.03	.82
	Avoidance	0.07	3,53	0.35	.97
	Dependence	2.25	3,53	6.46	.09
	Predetermination	1.59	3,53	7.42	.20
	Low effort	0.77	3,53	2.52	.52
Career beliefs	Employment status	0.21	3,53	48.18	.88
	Career plans	1.32	3,53	133.16	.28
	Uncertain accept	0.01	3,53	0.56	.99
	Openness	0.04	3,53	0.95	.99
	Achievement	0.21	3,53	9.81	.89
	Tert. education	1.54	3,53	88.97	.21
	Intrinsic satisf.	0.77	3,53	21.40	.51
	Peer equality	1.26	3,53	63.34	.30
	Structured wk env	0.29	3,53	20.00	.83
	Control	1.25	3,53	67.75	.30
	Responsibility	0.31	3,53	12.06	.81
	Approval of others	0.56	3,53	38.65	.64
	Self-other comp	1.52	3,53	74.10	.22
	Job/educ variation	0.77	3,53	21.90	.52

Career path flex	0.45	3,53	19.06	.72
Post training trans	1.37	3,53	37.20	.26
Job experiment'n	1.30	3,53	73.64	.28
Relocation	0.59	3,53	56.69	.62
Improving self	1.33	3,53	86.65	.27
Persist/uncertain	1.34	3,53	34.85	.27
Taking risks	1.16	3,53	49.80	.33
Learning job skill	0.56	3,53	21.64	.64
O'come obstacle	2.13	3,53	54.38	.11
Working hard	0.99	3,53	25.22	.40

APPENDIX E

Questionnaires from Study 2.

Schedule of Recent Experience Part A

Instructions. Think back on each possible life event listed below, and decide if it happened to you within the last year. If the event did happen, check the box next to it.

	<i>Check here if event happened to you</i>	<i>Mean value (use for scoring later)</i>
1. A lot more or a lot less trouble with the boss.	_____	_____
2. A major change in sleeping habits (sleeping a lot more or a lot less, or change in part of day when asleep).	_____	_____
3. A major change in eating habits (a lot more or a lot less food intake, or very different meal hours or surroundings).	_____	_____
4. A revision of personal habits (dress, manners, associations, etc.).	_____	_____
5. A major change in your usual type and/or amount of recreation.	_____	_____
6. A major change in your social activities (clubs, dancing, movies, visiting, etc.).	_____	_____
7. A major change in your church activities (a lot more or a lot less than usual).	_____	_____
8. A major change in number of family get-togethers (a lot more or a lot less than usual).	_____	_____
9. A major change in financial state (a lot worse off of a lot better off than usual).	_____	_____
10. In-law troubles.	_____	_____
11. A major change in the number of arguments with spouse (a lot more or a lot less than usual regarding child-rearing, personal habits, etc.).	_____	_____
12. Sexual difficulties.	_____	_____

Schedule of Recent Experiences Part B

Instructions. In the space provided, indicate the *number of times* that each applicable event happened to you within the last two years.

	<i>Number of times</i>	<i>Mean value</i>	<i>Your score</i>
13. Major personal injury or illness.	_____	_____	_____
14. Death of a close family members (other than spouse.	_____	_____	_____
15. Death of spouse.	_____	_____	_____
16. Death of a close friend.	_____	_____	_____
17. Gaining a new family members (through birth, adoption, oldster moving in, etc.).	_____	_____	_____
18. Major change in the health or behaviour of a family member.	_____	_____	_____
19. Change in residence.	_____	_____	_____
20. Detention in gaol or other institution.	_____	_____	_____
21. Minor violations of the law (traffic tickets, jaywalking, disturbing the peace, etc.).	_____	_____	_____
22. Major business readjustment (merger, reorganisation, bankruptcy, etc.).	_____	_____	_____
23. Marriage.	_____	_____	_____
24. Divorce.	_____	_____	_____
25. Martial separation from spouse.	_____	_____	_____
26. Outstanding personal achievement.	_____	_____	_____
27. Son or daughter leaving home (marriage, attending university, etc.).	_____	_____	_____
28. Retirement from work.	_____	_____	_____
29. Major change in working hours or conditions.	_____	_____	_____

- | | | | |
|--|-------|-------|-------|
| 30. Major change in responsibilities at work
(promotion, demotion, lateral transfer). | _____ | _____ | _____ |
| 31. Being fired from work. | _____ | _____ | _____ |
| 32. Major change in living conditions (building
a new home, remodeling, deterioration of
home or neighbourhood). | _____ | _____ | _____ |
| 33. Wife beginning or ceasing work outside
the home. | _____ | _____ | _____ |
| 34. Taking on a mortgage greater than \$25,000
(purchasing a home, business, etc.). | _____ | _____ | _____ |
| 35. Taking on a mortgage or loan of less than
\$25,000 (purchasing a car, TV, freezer, etc.). | _____ | _____ | _____ |
| 36. Foreclosure on a mortgage or loan. | _____ | _____ | _____ |
| 37. Vacation. | _____ | _____ | _____ |
| 38. Changing to a new school. | _____ | _____ | _____ |
| 39. Changing to a different line of work. | _____ | _____ | _____ |
| 40. Beginning or ceasing formal schooling. | _____ | _____ | _____ |
| 41. Marital reconciliation with mate. | _____ | _____ | _____ |
| 42. Pregnancy. | _____ | _____ | _____ |

Mean values

<i>Life event</i>	<i>Mean value</i>	<i>Life event</i>	<i>Mean value</i>
1	23	22	39
2	16	23	50
3	15	24	73
4	24	25	65
5	19	26	28
6	18	27	29
7	19	28	45
8	15	29	20
9	38	30	29
10	29	31	47
11	35	32	25
12	39	33	26
13	53	34	31
14	63	35	17
15	100	36	30
16	37	37	13
17	39	38	20
18	44	39	36
19	20	40	26
20	63	41	45
21	11	42	40

APPENDIX F

Statistical results from Study 2.

Table 44.
ANOVA results from Study 2.

Data	Variable	F	df	M ²	p
Work Environment Scale	Involvement	2.80	3,56	815.15	.05
	Peer cohesion	3.04	3,56	1336.57	.04
	Staff support	8.36	3,56	2064.76	.0001
	Autonomy	2.43	3,56	771.09	.07
	Task orientation	0.63	3,56	230.25	.59
	Work pressure	9.98	3,56	2621.95	.0001
	Clarity	2.74	3,56	959.06	.052
	Control	1.15	3,56	311.23	.34
	Innovation	0.22	3,56	76.67	.88
	Physical comfort	2.18	3,56	864.95	.10

APPENDIX G

Questionnaires from Study 3.

SOURCES OF STRESS QUESTIONNAIRE

Please indicate if you experienced each source of stress by circling 'yes' or 'no' next to each statement. For those sources of stress that you did experience, please indicate to what extent they influenced your stress response.

Please rate the extent of influence using the scale below:

- 1 = A little influence on my stress response
- 2 = A moderate influence on my stress response
- 3 = A large influence on my stress response
- 4 = An extreme influence on my stress response

Lack of control

- | | | | | | | |
|----|---|--------|---|---|---|---|
| 1. | Little input into job related matters. | yes/no | 1 | 2 | 3 | 4 |
| 2. | Insufficient authority to perform job requirements. | yes/no | 1 | 2 | 3 | 4 |
| 3. | Few options for change within your job. | yes/no | 1 | 2 | 3 | 4 |
| 4. | Little influence on decision-making. | yes/no | 1 | 2 | 3 | 4 |

Information gap

- | | | | | | | |
|----|--|--------|---|---|---|---|
| 5. | Little information about responsibilities of your position. | yes/no | 1 | 2 | 3 | 4 |
| 6. | Little information about changes or potential changes within your workplace. | yes/no | 1 | 2 | 3 | 4 |
| 7. | Little information about criteria for assessment of performance. | yes/no | 1 | 2 | 3 | 4 |
| 8. | A general feeling that you are not being told information that directly affects your position. | yes/no | 1 | 2 | 3 | 4 |

Cause and effect

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 9. | Little or no recognition for good work. | yes/no | 1 | 2 | 3 | 4 |
| 10. | Good performance ignored because of departmental politics. | yes/no | 1 | 2 | 3 | 4 |
| 11. | Someone else taking credit for your good performance. | yes/no | 1 | 2 | 3 | 4 |
| 12. | Never being able to achieve goals because management sets new rules. | yes/no | 1 | 2 | 3 | 4 |

Interpersonal conflict

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 13. | Conflicts with colleagues. | yes/no | 1 | 2 | 3 | 4 |
| 14. | Conflicts with supervisors. | yes/no | 1 | 2 | 3 | 4 |
| 15. | Being caught in a conflict situation involving two or more other people. | yes/no | 1 | 2 | 3 | 4 |
| 16. | A general atmosphere of conflict and mistrust. | yes/no | 1 | 2 | 3 | 4 |

Block career

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 17. | Limited opportunities to advance in your career. | yes/no | 1 | 2 | 3 | 4 |
| 18. | Reduced opportunities to advance in your career. | yes/no | 1 | 2 | 3 | 4 |
| 19. | You expected to be promoted but had not been. | yes/no | 1 | 2 | 3 | 4 |
| 20. | There were particular circumstances or individuals that were blocking your career. | yes/no | 1 | 2 | 3 | 4 |

Alienation

- | | | | | | | |
|-----|---|--------|---|---|---|---|
| 21. | At times I have felt isolated from my colleagues. | yes/no | 1 | 2 | 3 | 4 |
| 22. | I do not seem to fit in at work. | yes/no | 1 | 2 | 3 | 4 |
| 23. | I have no deep feelings for the organisation. | yes/no | 1 | 2 | 3 | 4 |
| 24. | I do not know the people at work as well as I should. | yes/no | 1 | 2 | 3 | 4 |

Work overload

- | | | | | | | |
|-----|---|--------|---|---|---|---|
| 25. | I have far too much to do most of the time. | yes/no | 1 | 2 | 3 | 4 |
| 26. | It seems like all my work is urgent. | yes/no | 1 | 2 | 3 | 4 |
| 27. | I have had to work longer hours or at home because of the amount of work I must complete. | yes/no | 1 | 2 | 3 | 4 |
| 28. | There are times that I am so busy that I feel exhausted. | yes/no | 1 | 2 | 3 | 4 |

Work underload

- | | | | | | | |
|-----|---|--------|---|---|---|---|
| 29. | At times I have too little to do at work. | yes/no | 1 | 2 | 3 | 4 |
|-----|---|--------|---|---|---|---|

30. I am over-qualified for the tasks I am expected to complete. yes/no 1 2 3 4

31. Most of my work tasks are dull and repetitive. yes/no 1 2 3 4

32. There are times at work that I am very bored. yes/no 1 2 3 4

Physical work environment

33. There is no privacy at work because of the workplace design. yes/no 1 2 3 4

34. It is either too hot or too cold at work. yes/no 1 2 3 4

35. There is a lot of noise at work. yes/no 1 2 3 4

36. The artificial light bothers me. yes/no 1 2 3 4

Value conflict

37. At work I am asked to perform actions that are against my better judgement. yes/no 1 2 3 4

38. I feel I have to compromise my values at work. yes/no 1 2 3 4

39. I have seen colleagues performing actions of which I do not approve. yes/no 1 2 3 4

40. At work I have felt pressured to perform actions that I consider to be unsafe or unethical. yes/no 1 2 3 4

Exposure to trauma

41. I have been physically threatened at work. yes/no 1 2 3 4

42. I have been physically assaulted at work. yes/no 1 2 3 4

43. I have been threatened with a weapon at work. yes/no 1 2 3 4

44. I have witnessed traumatic events at work that have involved injury or death. yes/no 1 2 3 4

Restructuring

45. I am worried by significant changes that have occurred or are occurring at work. yes/no 1 2 3 4

46. There have been organisation-wide changes at work. yes/no 1 2 3 4

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 47. | The structure of our department has changed. | yes/no | 1 | 2 | 3 | 4 |
| 48. | I am worried that my job may be changed or abolished in a restructure. | yes/no | 1 | 2 | 3 | 4 |

New technology

- | | | | | | | |
|-----|---|--------|---|---|---|---|
| 49. | I have had to learn to use a new computer at work. | yes/no | 1 | 2 | 3 | 4 |
| 50. | I have had to learn to use new computer software. | yes/no | 1 | 2 | 3 | 4 |
| 51. | The equipment I use at work has been upgraded. | yes/no | 1 | 2 | 3 | 4 |
| 52. | I am now expected to use technology that was not previously part of my job. | yes/no | 1 | 2 | 3 | 4 |

Lack of training

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 53. | I have been expected to perform a job with insufficient training. | yes/no | 1 | 2 | 3 | 4 |
| 54. | I have been given new tasks to complete without sufficient training. | yes/no | 1 | 2 | 3 | 4 |
| 55. | I have been expected to teach myself to use new computer software. | yes/no | 1 | 2 | 3 | 4 |
| 56. | There are aspects of my job I do not feel confident completing because of insufficient training. | yes/no | 1 | 2 | 3 | 4 |

Career path stress

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 57. | Because of restructuring, I have had to apply for my own position. | yes/no | 1 | 2 | 3 | 4 |
| 58. | Because of restructuring, I have had to apply for another position. | yes/no | 1 | 2 | 3 | 4 |
| 59. | Because of restructuring, I have had to be interviewing for positions. | yes/no | 1 | 2 | 3 | 4 |
| 60. | I have had to apply for reclassification. | yes/no | 1 | 2 | 3 | 4 |

Physical difficulties

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 61. | I am physically unable to perform aspects of my job. | yes/no | 1 | 2 | 3 | 4 |
|-----|--|--------|---|---|---|---|

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 62. | I have been given special consideration at work because of physical limitations. | yes/no | 1 | 2 | 3 | 4 |
| 63. | My colleagues seem to resent my physical limitations. | yes/no | 1 | 2 | 3 | 4 |
| 64. | I have been asked to perform a work task of which I am physically unable to perform. | yes/no | 1 | 2 | 3 | 4 |

Lack of support

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 65. | My supervisor does not support me at work. | yes/no | 1 | 2 | 3 | 4 |
| 66. | The organisation does not care about me. | yes/no | 1 | 2 | 3 | 4 |
| 67. | When I ask for support, I do not get it. | yes/no | 1 | 2 | 3 | 4 |
| 68. | My supervisor will do nothing rather than go in to bat for me. | yes/no | 1 | 2 | 3 | 4 |

Personal demands and responsibilities

- | | | | | | | |
|-----|--|--------|---|---|---|---|
| 69. | I am not cut out for my job. | yes/no | 1 | 2 | 3 | 4 |
| 70. | I cannot cope with aspects of my job although others seem to enjoy it. | yes/no | 1 | 2 | 3 | 4 |
| 71. | I do not like to be given too much responsibility. | yes/no | 1 | 2 | 3 | 4 |
| 72. | I would rather be doing a completely different type of job. | yes/no | 1 | 2 | 3 | 4 |

Harassment and disciplinary action

- | | | | | | | |
|-----|---|--------|---|---|---|---|
| 73. | I have been sexually harassed at work. | yes/no | 1 | 2 | 3 | 4 |
| 74. | I have been accused of sexual harassment. | yes/no | 1 | 2 | 3 | 4 |
| 75. | I have been in serious trouble at work because of mistakes that I have made. | yes/no | 1 | 2 | 3 | 4 |
| 76. | I have been accused of something I did not do and have faced serious trouble. | yes/no | 1 | 2 | 3 | 4 |

APPENDIX H

Statistical results from Study 3.

Table 45.
ANOVA results from Study 3.

Data	Variable	F	df	M ²	p
Occupational Stress Inventory	Role overload	5.29	3,56	711.87	.003
	Role insuffic.	1.52	3,56	207.34	.22
	Role ambiguity	0.41	3,56	53.43	.75
	Role boundary	1.43	3,56	160.36	.24
	Responsibility	2.60	3,56	359.74	.06
	Physical environ.	1.15	3,56	202.09	.34
Sources of Stress Severity	Lack of control	2.30	3,57	50.45	.09
	Information gap	1.61	3,57	30.15	.20
	Cause and effect	4.78	3,57	92.68	.005
	Interpers conflict	4.16	3,57	91.11	.01
	Blocked career	1.57	3,57	33.64	.20
	Alienation	1.89	3,57	23.36	.14
	Work overload	2.84	3,57	71.69	.05
	Work underload	0.28	3,57	5.90	.84
	Work environm't	1.75	3,57	13.50	.17
	Value conflict	1.98	3,57	61.95	.13
	Trauma exposure	2.06	3,57	83.78	.11
	Restructuring	0.69	3,57	15.24	.56
	New technology	0.40	3,57	3.74	.75
	Lack of training	0.22	3,57	2.93	.88
	Career path stress	2.08	3,57	29.05	.11
	Phys. difficulties	0.25	3,57	0.91	.86
	Lack of support	3.53	3,57	104.13	.02
	Pers. demands	1.83	3,57	25.37	.15
	Harrass/discipline	2.99	3,57	17.25	.04

APPENDIX I

Copy of visual analogue scales used in Study 4.

VISUAL ANALOGUE SCALES

Script:

Stage:

How do you feel?

Relaxed _____ Tense

Relaxed _____ Anxious

Calm _____ Angry

Unafraid _____ Afraid

Relieved _____ Uptight

How well were you able to put yourself in the scene?

Unclear _____ Clear

How close to real life was that scene?

Not close _____ Very close

APPENDIX J

Examples of imagery scripts.

EXAMPLE OF STRESSFUL WORK EVENT SCRIPT

Setting the scene

Right, it's first thing in the morning and you are in your area at work. Really put yourself in the area. Your desk is in the corner of the main office. Notice the room is bright. It has a skylight in it. Look over and see Angela's desk in the middle of the room. Now see the front counter, phone, and filing cabinets. Now see the kettle in the corner and the Compactus. Notice you can hear the noise of the other people around the office area. Remember how you are feeling.

Concentrate on that feeling right now (pause). Now look around in your area. You're sitting at your desk. See the computer, the screen and keyboard. See your trays on your desk, and the cupboard that gives you some privacy. You want to put your best foot forward, have a smile on your face, and you think that you'll do the best you can. *Concentrate on that right now (pause).* Now open your eyes and switch that scene off.

Approach

Right, you are at your desk. You think that you'll pick up from where you left off the day before. Now look to the list of tasks on your desk that Fiona has placed there. Remember thinking "But I haven't done the other tasks and now there are these, too". You think there is no way you'll get these done. You think you'll have to try and prioritise the items. See yourself looking at each item. Think about what you have to do. *Concentrate on how you are feeling right now (pause).* Now you think you'll go to Angela and ask her what she has on her plate. See Angela at her desk. Now walk to her and hear yourself ask her what she has on her plate. Now hear her answer you. She tells you the things she has on. Hear her till you she has a lot to do. Remember that you think you'll have to

go to Fiona and discuss the list with her. You've had to do this before. You start to walk around to Fiona's office. *Concentrate on how you are feeling right now (pause)*. Now open your eyes and switch that scene off.

Incident

Right, you are in Fiona's office. You have tried to organise how to do the items on the list and decided to go and discuss them with Fiona. Now you sit down with her. Hear yourself tell Fiona the situation. Really remember trying to tell her that it will be difficult to get the items on the list done. You ask her what on the list is highest priority. You feel desperate. *Concentrate on that feeling right now (pause)*. Now hear her answer. She says that the changes she has made and the requests she has made impact on other things, and none of the items can be left off. Really hear her response, she says it all has to be done. You think you are constantly faced with this situation, and wonder where to go from here. You feel tired and desperate and frustrated. *Concentrate on that feeling right now (pause)*. Now open your eyes and switch that scene off.

Consequence

Right, you have spoken with Ann, but she can't help you with the list. Now you walk back around to the office area. Remember the thoughts running through your mind. You know Angela has pressures and deadlines as well. You feel stressed. *Concentrate on that feeling right now (pause)*. Now you are back at your desk. Sit down now. You are frustrated that you can't get the work load changed. You are wondering where to go from here. You start to work again and try to get some of it done. You feel stressed. *Concentrate on that feeling right now (pause)*. Now open your eyes and switch that scene off.

EXAMPLE OF NON-STRESSFUL WORK EVENT SCRIPT

Setting the scene

Right, I want you to think bout the non-stressful work event that we discussed. You are in your area at work. Really put yourself in the area. Your desk is in the corner of the main office. Notice the room is bright. It has a skylight in it. Look over and see Angela's desk in the middle of the room. Now see the front counter, phone and filing cabinets. Now see the kettle in the corner and the Compactus. Notice you can hear the noise of other people around the office area. It is about the middle of the day. Remember how you are feeling. *Concentrate on that feeling right now (pause)*. Now look around in your area. You are sitting at your desk. See the computer, the screen and keyboard. See your trays on your desk, and the cupboard that gives you some privacy. You are working away at your desk. *Concentrate on how you are feeling right now (pause)*. Now open your eyes and switch that scene off.

Approach

Right, you are sitting at your desk working away. Now notice you can hear a little rattle. You think it might be the wind. Now notice you hear it again. Now low over and see the door handle moving. Remember you think to yourself it is a child from Prep who is not tall enough to reach the door handle. *Concentrate on how you are feeling right now (pause)*. Now feel yourself get up from the desk. Walk over to the door and open the door. Now see it is a little girl, with other children who have tagged along with her. Really see the group of children. They are here to ask you something. *Concentrate on how you are feeling right now (pause)*. Now open your eyes and switch that scene off.

Incident

Right, there is a group of children standing in the room. Really see their faces. Now hear one of them tell you that they've found an elephant hairclip. Really hear her voice. She asks, "It's not yours is it?" See her showing you the hairclip she has found. Now you say "No, let me see" and you take the clip and start to look at it closely. Really remember looking at the clip with the children. You enjoy dealing with the children. *Concentrate on how you are feeling right now (pause)*. Feel the clip in your hand. Now say, "No, no my little elephant is bluer than that." You also say, "No, I think my elephant is going the other way." See the children listening. They say "ohhh", like they really believe you. They look at your hair to see if it is yours. It is good being with the kids. *Concentrate on how you are feeling right now (pause)*. Now open your eyes and switch that scene off.

Consequence

Right, you have told the children that the hairclip is not yours. Now you tell them you'll put it in the lost property box. They seem OK with that. Now see them leave the office. See them walk out the door. You close the door behind them. Now you'll have a bit of a joke with Angela. Feel yourself put the clip in your hair, and you say "What do you think, Angela?". You both have a giggle. *Concentrate on how you are feeling right now (pause)*. Now take the hairclip out of your hair again. Walk over to the box of lost property. See the box. Now put the hairclip in with the rest of the items. Now feel yourself go back to your desk and sit down. You'll continue on with your work. You enjoy the interactions with the kids. *Concentrate on how you are feeling right now (pause)*. Now open your eyes and switch that scene off.

EXAMPLE OF NEUTRAL EVENT SCRIPT

Setting the scene

Right, you are at home in the kitchen about to make a cup of tea for you and Chris. Really put yourself in the kitchen. Look around and notice the white kitchen. It looks clean. See the white bench tops, the white cupboards and the white walls. Now see the window with the Roman blind that you made. Look out of the window. Notice the backyard with the shrubs. Now see your neighbour's roof. Notice you can look out and see both bridges. You feel relaxed in the kitchen. *Concentrate on that feeling right now (pause)*. Now look down at the floor in the kitchen and see the terracotta tiles. Now look around at the layout of the kitchen and the things you have it decorated with. See the sink and the kettle. Now look over to the pantry, see the wall oven and bench plates, the microwave, and the fridge and freezer. Now see the breakfast bar and chairs. You like being in the kitchen. *Concentrate on that feeling right now (pause)*. Now open your eyes and switch that scene off.

Approach

Right, you are in the kitchen making tea. First, you'll put the kettle on to boil. See the white plastic kettle sitting on the bench. It is a cordless kettle. Feel yourself pick up the kettle. Now take it to the sink. You feel relaxed in the kitchen. *Concentrate on that feeling right now (pause)*. Now feel yourself turn on the cold tap and hear the running water. Now start to fill up the kettle. Feel the kettle getting heavier. You only want to put enough water in so that it doesn't take too long to boil. Notice there is enough water in the kettle. Turn off the tap and lift the kettle back to its stand and place it down. Now press the button so that the kettle starts to boil. You are feeling relaxed in the kitchen.

Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

Incident

Right, the kettle is on to boil. Now get your mugs out. Look down to the cupboard where the mugs are. Now open the door and take out two mugs, one for you and one for Chris. Now close the door and sit the mugs on the bench. Now take a teaspoon from the drawer. Now see the canisters of sugar and tea and coffee sitting on the bench. Reach for the canister with tea in it. Now open the canister and take out a round tea bag and put it in Chris' mug. Now take out another for your mug. Put the canister back in its place. You enjoy being in the kitchen. *Concentrate on that feeling right now (pause).* Now see the canister with sugar in it. Take the lid off and take a teaspoon of sugar out and put it in your mug. Put the canister back. You are feeling relaxed. *Concentrate on that feeling right now (pause).* Now open your eyes and switch that scene off.

Consequence

Right, you have prepared the mugs for tea. Now notice the water has boiled in the kettle. Reach out and pick up the kettle. Really feel the weight of it in your hand. Now feel yourself pour water into Chris' mug. See the steam rising. Now pour water into your mug. See the mug filling. Now stop pouring and sit the kettle down. You are feeling relaxed. *Concentrate on that feeling right now (pause).* Now get the milk. Go to the fridge and feel yourself open the fridge door. See the milk inside. Take out the milk. Now take the milk to where you are making your tea. Pour the milk into each of the mugs. Now take the milk back. See the tea drawing in the mugs. Feel yourself give each tea bag a bang on the side of the mug. Put the tea bag in the pottery jar for tea bags. Now see

the biscuit barrel. Feel yourself take the tea and biscuit barrel through to the lounge. You are feeling relaxed. *Concentrate on that feeling right now (pause).* Now open your eyes and switch that scene off.

APPENDIX K

Descriptive statistics from Study 4.

Table 46.

The means and standard deviations for the psychophysiological and psychological measures for each stage of each script for the four groups.

Script/stage	Compensation		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
<i>Heart rate</i>								
<i>Stressful</i>								
Scene	73.7	12.4	73.4	12.0	73.8	10.9	73.0	11.8
Approach	73.5	11.8	73.7	11.6	76.8	11.7	74.9	12.5
Incident	74.1	12.8	74.5	12.8	76.2	13.6	73.2	13.5
Consequence	74.2	11.8	72.7	12.5	73.6	10.7	72.9	12.7
<i>Non-stressful</i>								
Scene	71.3	12.8	71.1	12.1	72.3	9.1	69.6	10.3
Approach	70.3	11.8	70.6	12.8	72.4	9.9	70.0	11.1
Incident	70.2	12.4	70.9	12.6	72.2	8.9	70.6	10.6
Consequence	70.8	12.1	70.7	12.4	73.3	9.1	70.4	10.4
<i>Neutral</i>								
Scene	69.3	10.4	69.6	12.1	71.1	10.0	69.6	11.8
Approach	67.9	11.1	68.8	11.2	71.3	9.6	70.2	12.3
Incident	68.3	10.9	69.4	10.7	72.1	9.5	70.3	12.3
Consequence	68.0	10.8	69.2	11.1	72.8	8.7	70.4	11.8
<i>Relaxed/tense</i>								
<i>Stressful</i>								
Scene	57.6	17.4	42.3	20.4	56.8	29.4	46.6	31.5
Approach	65.5	26.1	63.4	26.8	65.6	36.8	68.6	27.4
Incident	77.9	19.3	79.9	19.6	80.4	23.5	87.2	12.4
Consequence	78.6	18.0	71.5	23.3	50.6	33.9	81.3	21.5
<i>Nonstressful</i>								
Scene	28.1	17.1	22.6	16.2	10.1	9.3	14.2	9.3
Approach	20.4	10.1	18.9	14.5	7.1	7.8	16.2	15.9
Incident	22.5	16.2	21.2	19.6	11.3	9.6	14.7	20.3
Consequence	18.3	15.2	14.2	21.9	8.0	7.1	9.6	10.0
<i>Neutral</i>								
Scene	17.1	10.2	15.5	16.5	4.7	5.1	10.9	16.4
Approach	13.8	13.3	13.6	13.3	5.1	5.6	9.5	12.4
Incident	15.2	14.1	15.5	20.0	3.1	3.6	8.8	12.5
Consequence	9.2	6.8	11.2	17.1	2.6	3.3	9.2	17.7

Cont...

Relaxed/anxious***Stressful***

Scene	61.0	21.6	46.0	23.9	59.4	29.3	51.1	30.3
Approach	65.9	26.7	60.8	24.5	55.8	34.3	69.2	27.4
Incident	78.5	17.2	76.7	18.9	67.4	35.7	85.3	13.1
Consequence	79.6	17.9	73.9	21.1	47.4	33.0	74.8	22.1

Nonstressful

Scene	29.6	24.2	22.6	16.9	10.3	9.9	16.2	12.2
Approach	20.0	9.4	17.6	14.7	5.7	8.8	15.1	16.9
Incident	19.2	18.1	20.8	21.3	10.8	9.6	14.6	17.8
Consequence	16.6	12.6	13.5	18.4	5.1	4.1	9.8	11.1

Neutral

Scene	15.7	12.6	13.7	15.0	4.8	4.9	11.6	17.0
Approach	12.2	14.1	9.6	11.9	4.0	4.2	8.6	12.2
Incident	11.9	10.9	14.7	18.6	3.3	3.9	9.7	12.3
Consequence	6.6	5.6	10.7	17.0	3.0	3.7	9.5	17.6

Calm/angry***Stressful***

Scene	53.2	21.4	35.0	23.8	43.1	31.4	33.2	27.3
Approach	61.0	23.5	49.4	31.1	53.6	33.3	56.0	29.4
Incident	73.0	18.8	70.7	30.0	67.8	33.9	72.2	18.8
Consequence	75.9	20.6	61.8	25.4	45.0	41.0	74.0	25.1

Nonstressful

Scene	19.2	17.2	15.3	12.9	2.8	3.4	8.5	5.2
Approach	13.4	7.3	14.7	12.5	2.7	3.0	8.3	5.3
Incident	15.3	12.4	13.2	11.6	5.7	3.7	8.1	6.0
Consequence	12.9	12.3	10.6	12.3	4.0	3.8	7.1	6.7

Neutral

Scene	13.0	10.9	7.2	9.2	4.6	4.5	7.2	12.1
Approach	10.0	10.5	8.1	11.4	3.6	3.9	8.0	11.5
Incident	10.9	11.5	9.5	12.3	3.3	3.9	7.9	11.8
Consequence	7.3	6.1	6.3	8.5	2.4	4.3	6.9	12.7

Unafraid/afraid***Stressful***

Scene	55.7	28.7	32.1	19.8	25.4	20.1	40.4	30.4
Approach	56.8	28.8	50.0	28.4	38.0	29.3	51.8	29.1
Incident	68.2	29.7	55.9	27.0	45.3	32.0	67.7	25.7
Consequence	67.7	26.7	65.3	32.9	52.3	26.5	28.7	28.6

Cont...

Nonstressful

Scene	14.8	13.7	14.6	16.9	1.3	1.1	12.7	14.7
Approach	9.6	8.6	14.2	15.0	3.7	3.6	10.0	11.3
Incident	12.6	11.1	13.8	13.9	5.3	5.7	13.1	15.5
Consequence	8.3	9.0	16.9	22.0	2.1	1.6	13.1	16.9

Neutral

Scene	8.9	10.2	7.0	8.1	1.1	1.2	6.6	12.2
Approach	7.0	6.3	12.6	17.7	2.3	2.1	7.7	12.1
Incident	6.8	5.7	9.6	12.4	1.4	1.4	8.6	12.4
Consequence	4.5	3.8	9.5	12.7	0.8	1.2	6.8	13.0

*Relieved/uptight**Stressful*

Scene	65.0	19.1	52.8	28.0	63.4	31.2	56.9	28.4
Approach	72.2	22.3	62.7	25.2	72.7	27.0	72.6	26.7
Incident	81.4	18.8	77.5	20.3	82.7	25.8	87.6	13.1
Consequence	79.0	20.6	63.1	32.6	34.7	43.4	72.6	33.3

Nonstressful

Scene	23.7	20.5	23.6	18.9	14.1	18.5	22.8	18.1
Approach	16.7	11.3	15.9	13.9	14.7	19.8	24.1	17.1
Incident	18.4	14.8	18.2	17.8	14.0	16.7	20.8	18.7
Consequence	13.9	12.4	19.0	20.7	7.0	9.5	17.7	16.6

Neutral

Scene	16.9	14.2	19.9	21.1	9.7	17.9	20.0	21.0
Approach	12.9	11.2	19.1	21.3	9.3	18.0	21.7	20.9
Incident	12.4	12.0	18.7	21.6	8.3	16.3	21.6	21.4
Consequence	9.6	10.9	14.4	19.3	4.7	8.9	19.8	21.3

Table 47.

The means and standard deviations for each stage of each script for the control VASs measuring clarity of imagery and accuracy of script content for the four groups.

Script/stage	Compensation		Assistance		Stressed		No Stress	
	M	SD	M	SD	M	SD	M	SD
Clarity								
<i>Stressful</i>								
Scene	75.5	20.5	79.0	22.9	79.1	18.0	88.6	8.9
Approach	77.3	18.6	79.3	23.7	82.3	17.0	86.1	13.4
Incident	81.4	18.6	79.7	22.6	88.4	10.2	89.6	9.8
Consequence	76.3	19.0	77.6	26.1	89.7	7.7	90.7	12.0
<i>Nonstressful</i>								
Scene	79.2	15.4	80.6	15.8	91.6	5.0	90.1	7.9
Approach	82.5	14.5	80.1	20.2	91.6	9.2	88.8	10.3
Incident	80.2	19.1	82.6	19.2	93.0	7.6	90.7	6.7
Consequence	79.1	24.6	80.1	23.0	94.0	6.9	92.7	5.7
<i>Neutral</i>								
Scene	84.2	17.3	88.3	13.0	83.1	20.0	93.0	6.7
Approach	79.2	26.2	86.2	14.4	94.6	3.6	94.8	4.1
Incident	81.4	24.5	92.0	6.0	94.8	3.1	94.4	4.6
Consequence	82.0	24.8	91.7	6.8	96.0	3.3	94.6	3.8
Accuracy								
<i>Stressful</i>								
Scene	80.4	13.4	78.3	21.6	81.4	18.5	84.8	9.2
Approach	80.8	16.6	81.3	23.6	86.3	17.5	86.5	11.4
Incident	82.8	18.8	81.0	24.2	91.0	9.5	84.4	14.0
Consequence	82.1	19.7	79.4	25.5	91.8	5.5	87.7	11.4
<i>Nonstressful</i>								
Scene	79.0	21.6	81.3	21.0	91.7	4.7	85.4	10.7
Approach	80.1	18.0	81.5	22.0	93.1	5.1	85.9	12.5
Incident	75.1	23.8	84.0	22.1	92.9	10.3	89.4	9.1
Consequence	78.4	19.9	84.0	22.4	96.0	2.0	91.0	7.1
<i>Neutral</i>								
Scene	85.4	15.2	91.9	5.3	93.8	4.8	92.6	7.4
Approach	78.9	25.9	90.7	6.9	94.3	3.2	94.1	3.5
Incident	81.2	24.2	90.9	7.8	95.3	2.7	94.3	4.0
Consequence	81.9	26.1	91.4	6.8	96.0	2.9	93.7	4.3

APPENDIX L

Questionnaires from Study 5.

By placing a mark on the horizontal line, please indicate how satisfied you are at the moment with the quality of your work life.

Completely
Dissatisfied

Completely
Satisfied



COPING STRATEGIES INVENTORY

The purpose of this inventory is to look at how people deal with experiencing a stressful work event. Take a few minutes to think about your chosen stressful work event. Consider each item, and **circle** the extent to which you used it in handling your chosen event.

Please rate the extent to which you used each strategy using the scale below:

- 1 = Not at all
- 2 = A little
- 3 = Somewhat
- 4 = Much
- 5 = Very much

- | | | | | | | |
|-----|--|---|---|---|---|---|
| 1. | I just concentrated on what I had to do next; the next step. | 1 | 2 | 3 | 4 | 5 |
| 2. | I tried to get a new angle on the situation. | 1 | 2 | 3 | 4 | 5 |
| 3. | I found ways to blow off steam. | 1 | 2 | 3 | 4 | 5 |
| 4. | I accepted sympathy and understanding from someone. | 1 | 2 | 3 | 4 | 5 |
| 5. | I slept more than usual. | 1 | 2 | 3 | 4 | 5 |
| 6. | I hoped the problem would take care of itself. | 1 | 2 | 3 | 4 | 5 |
| 7. | I told myself that if I wasn't so careless, things like this wouldn't happen. | 1 | 2 | 3 | 4 | 5 |
| 8. | I tried to keep my feelings to myself. | 1 | 2 | 3 | 4 | 5 |
| 9. | I changed something so it would turn out all right. | 1 | 2 | 3 | 4 | 5 |
| 10. | I looked for the silver lining, so to speak; tried to look on the bright side of things. | 1 | 2 | 3 | 4 | 5 |
| 11. | I did some things to get it out of my system. | 1 | 2 | 3 | 4 | 5 |
| 12. | I found somebody who was a good listener. | 1 | 2 | 3 | 4 | 5 |
| 13. | I went along as if nothing were happening. | 1 | 2 | 3 | 4 | 5 |
| 14. | I hoped a miracle would happen. | 1 | 2 | 3 | 4 | 5 |
| 15. | I realised that I brought the problem on myself. | 1 | 2 | 3 | 4 | 5 |
| 16. | I spent more time alone. | 1 | 2 | 3 | 4 | 5 |

17.	I stood my ground and fought for what I needed.	1	2	3	4	5
18.	I told myself things that helped me feel better.	1	2	3	4	5
19.	I let my emotions go.	1	2	3	4	5
20.	I talked to someone about how I was feeling.	1	2	3	4	5
21.	I tried to forget the whole thing.	1	2	3	4	5
22.	I wished that I never let myself get involved with the situation.	1	2	3	4	5
23.	I blamed myself.	1	2	3	4	5
24.	I avoided my family and friends.	1	2	3	4	5
25.	I made a plan of action and followed it.	1	2	3	4	5
26.	I looked at things in a different light and tried to make the best of what was available.	1	2	3	4	5
27.	I let out my feelings to reduce the stress.	1	2	3	4	5
28.	I just spent more time with people I liked.	1	2	3	4	5
29.	I didn't let it get to me; I refused to think about it too much.	1	2	3	4	5
30.	I wished that the situation would somehow go away.	1	2	3	4	5
31.	I criticised myself for what had happened.	1	2	3	4	5
32.	I avoided being with people.	1	2	3	4	5
33.	I tackled the problem head on.	1	2	3	4	5
34.	I asked myself what was really important, and discovered that things weren't so bad after all.	1	2	3	4	5
35.	I let my feelings out somehow.	1	2	3	4	5
36.	I decided that it was really someone else's problem and not mine.	1	2	3	4	5
38.	I wished that the situation had never started.	1	2	3	4	5
39.	Since what happened was my fault, I really chewed myself out.	1	2	3	4	5

40.	I didn't talk to other people about the problem.	1	2	3	4	5
41.	I knew what had to be done, so I doubled my efforts and tried harder to make things work.	1	2	3	4	5
42.	I convinced myself that things aren't quite as bad as they seemed.	1	2	3	4	5
43.	I let my emotions out.	1	2	3	4	5
44.	I let my friends help out.	1	2	3	4	5
45.	I avoided the person who was causing the trouble.	1	2	3	4	5
46.	I had fantasies or wishes about how things might turn out.	1	2	3	4	5
47.	I realised that I was personally responsible for my difficulties and really lectured myself.	1	2	3	4	5
48.	I spent some time by myself.	1	2	3	4	5
49.	It was a tricky problem, so I had to work around the edges to make things come out OK.	1	2	3	4	5
50.	I stepped back from the situation and put things into perspective.	1	2	3	4	5
51.	My feelings were overwhelming and they just exploded.	1	2	3	4	5
52.	I asked a friend or relative I respect for advice.	1	2	3	4	5
53.	I made light of the situation and refused to get too serious about it.	1	2	3	4	5
54.	I hoped that if I waited long enough things would turn out OK.	1	2	3	4	5
55.	I kicked myself for letting this happen.	1	2	3	4	5
56.	I kept my thoughts and feelings to myself.	1	2	3	4	5
57.	I worked on solving the problems in the situation.	1	2	3	4	5
58.	I reorganised the way I looked at the situation so things didn't look so bad.	1	2	3	4	5
59.	I got in touch with my feelings and just let them go.	1	2	3	4	5

60.	I spent some time with my friends.	1	2	3	4	5
61.	Every time I thought about it I got upset; so I just stopped thinking about it.	1	2	3	4	5
62.	I wished I could have changed what happened.	1	2	3	4	5
63.	It was my mistake and I needed to suffer the consequences.	1	2	3	4	5
64.	I didn't let my family and friends know what was going on.	1	2	3	4	5
65.	I struggled to resolve the problem.	1	2	3	4	5
66.	I went over the problem again and again in my mind and finally saw things in a different light.	1	2	3	4	5
67.	I was angry and really blew up.	1	2	3	4	5
68.	I talked to someone who was in a similar situation.	1	2	3	4	5
69.	I avoided thinking or doing anything about the situation.	1	2	3	4	5
70.	I thought about fantastic or unreal things that made me feel better.	1	2	3	4	5
71.	I told myself how stupid I was.	1	2	3	4	5
72.	I did not let others know how I was feeling.	1	2	3	4	5

APPENDIX M

Statistical results from Study 5.

Table 48.
ANOVA results from Study 5.

Data	Variable	F	df	M ²	p
SCL-90-R	Somatisation	2.73	3,56	528.35	.052
	Obsess-compul.	7.35	3,56	1027.72	.0003
	Interpers. sens.	4.86	3,56	590.95	.004
	Depression	5.98	3,56	927.77	.001
	Anxiety	7.48	3,56	1148.97	.0003
	Hostility	5.08	3,56	493.18	.004
	Phobic anxiety	2.13	3,56	225.44	.11
	Paranoid ideation	4.03	3,56	577.02	.02
	Psychoticism	3.31	3,56	380.26	.03
	GSI	8.17	3,56	1162.68	.0001
	PST	6.32	3,56	670.65	.0009
	PSDI	7.71	3,56	798.98	.0002
Coping Strategies Inventory	Prob. Approach	2.68	3,52	2.18	.057
	Cog. Restruct.	2.92	3,52	2.92	.04
	Express Emot.	1.63	3,52	1.52	.19
	Seek support	3.76	3,52	3.00	.02
	Prob. Avoid.	1.39	3,52	0.48	.25
	Wishful Think.	0.90	3,52	0.78	.45
	Self criticism	0.70	3,52	0.62	.55
	Soc. Withdraw.	0.67	3,52	0.40	.57
Occupational Stress Inventory	Vocational strain	3.55	3,56	622.98	.02
	Psychol. strain	8.02	3,56	1074.90	.0002
	Interpers. strain	1.77	3,56	206.62	.16
	Physical strain	6.61	3,56	664.15	.0007
	Recreation	0.93	3,56	118.71	.43
	Self-care	2.17	3,56	224.55	.10
	Social support	2.25	3,56	384.09	.09
	Rational/cog cope	1.98	3,56	175.65	.13
Job Satis.		1.11	3,62	1179.43	.35

Table 49.
The chi-square results from Study 5.

Data	Variable	χ^2	df	N	p
Heart/lungs	MI/chest pain	3.43	3	56	.33
	Heart murmur	0.89	3	56	.83
	Heart infection	0.00	3	56	1.00
	Irregular beat	1.72	3	56	.63
	High BP	4.97	3	56	.17
	Low BP	3.36	3	56	.34
	Fainting spells	4.78	3	56	.19
	Swollen ankles	4.08	3	56	.25
	Shortness breath	2.28	3	56	.52
	Rapid breathing	2.28	3	56	.52
	Lung disease	0.09	3	56	.99
	Other	3.02	3	56	.39
Nervous System	Headaches	7.13	3	56	.07
	Vision problems	1.83	3	56	.61
	Hearing problems	0.95	3	56	.81
	Balance problems	3.16	3	56	.37
	Major infections	0.59	3	56	.90
	Loss conscious	2.87	3	56	.41
	No memory	5.08	3	56	.17
	Stroke, etc.	4.38	3	56	.22
	Seizures	2.15	3	56	.54
Abdomen	Gastrointestinal	5.54	3	56	.14
	Liver problems	1.39	3	56	.71
	Gallbladder probs	4.24	3	56	.24
	Other	1.95	3	56	.58
Urinary	Urinary problems	0.47	3	56	.92
	STD	2.15	3	56	.54
Blood	Anaemia, etc.	6.74	3	56	.08
	Blood transfusion	2.20	3	56	.53
	Sharing needles	0.00	3	56	1.00
	Unsafe sex HIV	0.00	3	56	1.00
	HIV antibody test	0.59	3	56	.90
Bones	Fractures/dislocat.	5.63	3	56	.13
	Neck problems	5.12	3	56	.16
	Back problems	8.48	3	56	.04
	Osteoporosis	2.15	3	56	.54
	Joint problems	12.56	3	56	.006
	Torn ligament etc.	3.32	3	56	.34

	Dental problems	1.35	3	56	.72
Skin	Scars	0.93	3	56	.82
	Changes texture	5.01	3	56	.17
	Tattoos	1.68	3	56	.64
	Sweating change	9.85	3	56	.02
	Skin problems	5.41	3	56	.14
	Cosmetic surgery	4.91	3	56	.18
Endocrine	Diabetes	1.35	3	56	.72
	Thyroid problems	2.45	3	56	.48
	Other problems	2.78	3	56	.43
	Temp. intolerance	3.18	3	56	.36
Miscellan.	Allergies	5.86	3	56	.12
	Weight loss	2.70	3	56	.44
	Chem. Sensitivity	0.00	3	56	1.00
	Exposure toxins	6.69	3	56	.08
	Cancer	2.98	3	56	.39
	Benign tumours	7.43	3	56	.06
	Glandular fever	1.74	3	56	.63
	Chronic fatigue	0.00	3	56	1.00

APPENDIX N

Correlation matrix for regression analyses.

Table 50. *Correlation matrix for the variables used in the regression analyses.*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
A																									
B	.4																								
C	-.1	.1																							
D	.0	.1	.3																						
E	.2	-.1	-.1	.2																					
F	.0	.1	.1	.3	.4																				
G	-.3	-.3	.1	.0	.0	-.2																			
H	.5	.3	-.1	-.1	.0	.0	-.3																		
I	-.5	-.3	.2	.1	-.2	-.1	.3	-.4																	
J	-.3	-.2	.2	.1	.2	.2	.3	-.2	.4																
K	-.3	-.2	.0	.3	-.1	-.1	.2	-.3	.4	.3															
L	-.7	-.4	.1	.1	.0	.0	.3	-.4	.6	.6	.4														
M	-.5	-.3	.2	.0	-.2	-.1	.5	-.4	.6	.6	.3	.8													
N	.4	.3	.1	.1	.2	.2	-.1	.3	-.4	.0	-.1	-.2	-.2												
O	-.3	-.2	.1	-.2	-.2	-.2	.4	.1	.3	.2	.0	.3	.3	-.2											
P	-.2	-.2	.0	.0	-.1	-.1	.3	.1	.1	.1	.0	.3	.3	-.1	.6										
Q	-.1	-.3	-.2	-.1	.1	-.1	.4	.0	.1	.1	.0	.2	.2	-.1	.5	.6									
R	-.1	-.2	.0	.0	.0	-.1	.4	-.1	.1	.2	.0	.2	.2	-.1	.6	.5	.7								
S	-.2	-.1	.2	-.2	-.1	.0	.2	.0	.1	.2	-.2	.2	.1	-.1	.6	.3	.2	.2							
T	.1	.4	.0	-.1	-.3	-.1	-.4	.3	-.1	-.3	-.3	-.2	-.3	.1	-.1	-.3	-.5	-.3	.3						
U	-.2	-.5	-.1	-.2	.2	.2	.3	.0	.1	.3	.0	.3	.2	.0	.3	.5	.5	.3	.4	-.3					
V	.0	-.1	.0	.0	.1	.1	-.2	.1	.1	.1	-.2	.1	.0	-.1	-.2	.0	-.3	-.5	.2	.2	.3				
W	-.1	.1	.1	.0	-.2	-.1	.3	-.1	.3	.1	.2	.1	.2	-.1	.4	.1	.3	.4	.2	-.1	-.1	-.3			
X	-.1	-.3	-.1	-.1	.1	.0	.3	-.1	.2	.1	.2	.3	.2	-.2	.3	.3	.3	.2	.2	-.3	.4	.0	.3		
Y	.2	.5	.3	.2	.0	.2	-.4	.1	-.3	-.2	.0	-.2	-.2	.3	-.5	-.5	-.6	-.5	-.3	.3	-.4	.1	-.2	-.3	
Z	-.1	.1	.1	.0	.1	.4	-.2	.2	.1	.2	.0	.2	.0	.2	.1	.1	-.1	-.2	.1	.1	.2	.2	-.1	.1	.1

Bold/italics coefficients = significant correlation; A=DAS, B=PSDI, C=Problem Approach, D=Express Emotion, E=Problem Avoidance, F=Wishful Thinking, G=Job Satisfaction, H=Beliefs, I=Emotional coping, J=Spiritual coping, K=Physical coping, L=Cognitive coping, M=Social coping, N=Stressful life events, O=Involvement, P=Peer cohesion, Q=staff support, R=Autonomy, S=Task orientation, T=Work pressure, U=Clarity, V=Control, W=Innovation, X=Physical comfort, Y=Work stressor, Z=Psychological reaction